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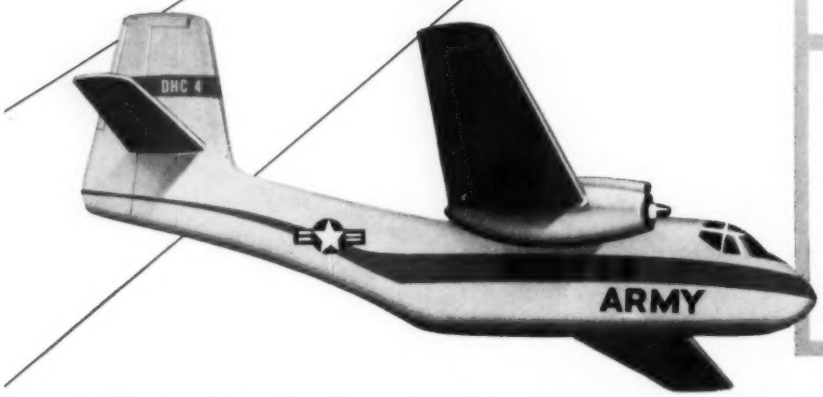

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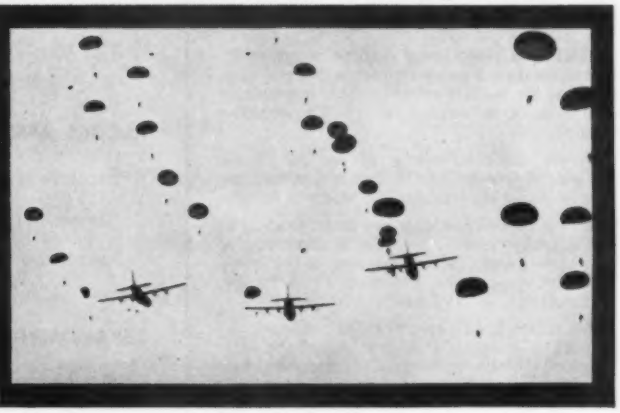

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ARMY

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In all, six of the Nike missiles were fired, and all six were "right on the button."

Developed and built for the Army by Western Electric, Bell Telephone Laboratories and Douglas, Nike Hercules is already augmenting the earlier Nike Ajax in the defense of our cities. An even more advanced version, the much-discussed Nike Zeus anti-missile missile, is under development at Douglas and Western Electric.

THE ARMED SERVICES' PARTNER IN DEFENSE

THE MONTH'S MAIL

Apples and Oranges

● I believe "GOER Decon Team" in your September issue mixes apples and oranges so ambiguously that an explanation to our professional readers (I am thinking of our younger officers and men) is necessary.

The authors introduce their subject as that of decontamination of personnel and equipment from the "fallout from an atomic surface burst." Much of what they subsequently say is entirely pertinent to this stated situation, but when they talk of "chemical decontamination slurries," and a spray bar which "sprays chemicals ahead and to the sides to provide a decontaminated path," to name two instances, they are confusing at least the reader about two significantly different types of contamination. Recognition of the difference is important to the soldier.

Action by toxic chemicals is on a chemical basis; that is, it is a molecular reaction involving changes in compounds of matter. Vesicant or "burn" bases, for example, act chemically to take oxygen from living matter so rapidly that charring and death of tissue result. On this same basis of chemical, molecular reaction, decontaminating chemicals (bleach powder, for example) can be introduced which will react chemically to produce harmless *compounds* by interaction with the toxic chemicals.

"Atomic" or radiological contamination is a completely different phenomenon. It is submolecular, or atomic contamination, and as such is immune to chemical, molecular decontamination. Atomic contamination produces energy rays of different kinds which destroy living cells by "ionizing." The tissue-killing characteristic of X-rays is exactly this sort of thing.

The important difference to recognize between chemical and "atomic" contamination is that the latter cannot be neutralized or rendered inactive by any chemical reaction: it is radiation energy which will continue to put out life-destroying X-rays at ever-decreasing rates until this energy release finally produces some stable, nonradiating compound. (The best-known example is that of radium, which, after thousands of years, turns into nonradioactive lead.) There is no known way to hasten this "decay" process.

Such measures as Colonel McKee and Captain Carroll suggest for separating radiological contamination from men and equipment by physical wash and spray are entirely valid, so long as it is recognized that the run-off water contains radioactive material and must be considered as a continuing source of contamination. But when they speak of "chemical" decontamination, all readers should be warned that this has no proper application to atomic fallout.

COL. U. G. GIBBONS
APO 958, SF

● *Our information is that these comments might have been valid a few years ago when service schools had not yet included in their curricula the required common subjects on CBR doctrine. However, now that all schools include a number of required common-subject hours dealing with the basic phenomena referred to by Colonel Gibbons, we hope that all officers and enlisted men realize that chemical slurries are for chemical decontamination and that actual removal of the agents (radioactive elements) is necessary in radiological decontamination. We are past the stage of backing up and explaining the basic concepts of these radioactive phenomena.*

Colonel Gibbons's last paragraph implies that no mention was made of the disposition that must be made of the run-off water. The third paragraph of the article covered this problem.

We must point out that the McKee-Carroll article was not meant as a treatise on radiological decontamination, but rather explained the capabilities of the new equipment. We should leave to the experts who operate the equipment how it should be employed for efficient and proper decontamination.—THE EDITORS.

American Military Institute Session

● May I call the attention of your readers to the joint session of the American Military Institute and the American Historical Association to be held during the annual meeting of the latter association at the Mayflower Hotel in Washington from 28 to 30 December? I am unable at the moment to give the exact time and place of the joint session, but I will be glad to correspond with any readers who would like to attend.

The theme of the session will be "New Perspectives on World War II." Papers will be presented by Dr. Norman Gibbs on "Strategy in the War Against Germany," and by Dr. Louis Morton on "Strategy in the War Against Japan." The critique will be delivered by Col. George A. Lincoln, formerly of the Strategic Planning Staffs of JCS and of the Combined Chiefs of Staff, and presently head of the Department of Social Sciences at USMA.

COL. WM. COOPER FOOTE
Secretary
American Military Institute
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War a Game of Chess?

● In "An Invitation to War" [September] Colonel Edwards starts off with "War is waged between men, not weapons." He then sets out to prove that war is a game of chess where the human factor is pretty much lost in a neat set of formulas. In the process of marshalling his proof the author cites such startling views on certain historical facts that he will probably receive a satchelful of rebuttal from historians who know better.

Exploitation is the crux of the article: a well-hammered-home exploitation of the assault is the difference between success and failure. There is no arguing with this idea; it has been Army doctrine for a long time. Nor does it seem particularly moot to say that a manifest inability to exploit invites war because in the glossary of things that cause or incite war "inability to exploit" is merely a minor term. True, it is an invitation. So are expansionism, weakness, balances of military power, conflicting spheres of interest, and hundreds of other major causes of conflict. The historical citations to prove his point are lifted out of context and twisted like a pretzel in Colonel Edwards's article.

For example, Hitler didn't exploit Dunkerque by invading the United Kingdom; therefore he failed in his exploitation phase and lost a chance.

The facts are that the German failure to invade the UK in 1940 indicates nothing more than that Britain was on a later time table. First the Germans had the French campaign to consolidate (they were way ahead of their own schedule on this). Next, they had to consolidate the French side of the Channel coast and prepare a springboard. By this time V-1 and V-2 would be ready for a strong supporting role. That they did rush a set of plans and engineer the trial cross-Channel shot

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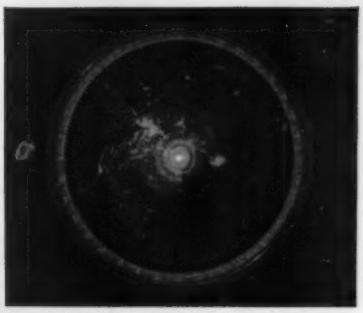

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called Sea Lion merely proves how abortive the UK venture was. Sea Lion was a case of too-little-and-too-early.

The article says that the Japanese at Pearl Harbor could have bought some insurance against total defeat by implanting an invading army in the Hawaiian Islands and on the U. S. mainland. But to their sorrow they didn't exploit.

The facts are that the fast carrier task force used by the Japanese had too many thousands of miles of Pacific Ocean to cross without shepherding troop transports. Here is a rather classic example of all the points in a successful attack. The Japanese set out to immobilize the Pacific Fleet, and they accomplished that mission. Their master plan called for army exploitation much later, after the northern flank was secured at Dutch Harbor and after some island bases had been stocked. Certainly after the army had matured in amphibious landings a little closer to home. In war you fight one campaign at a time. Phase lines are set by an army's capacity for operational readiness.

Colonel Edwards says Hitler invaded Norway and, being successful, proved that exploitation pays. "It seemed so easy, Norway fell like an overripe fruit. Norway was not overripe; Hitler's architecture was correct. Preparations were detailed. . . . German soldiers poured from warships and literally marched into Norway before the eyes of the hundreds of thousands of Norwegian reservists, lost among the other civilian watchers."

The fact is that Hitler had to secure his strategic right flank; if need be he would take all of Scandinavia. How the planners must have wargamed that one! Hitler made one of his better decisions of the war. In a neutralist complex of three countries he chose to occupy Norway and Denmark for bases while squeezing fishery and farm economies to feed the homeland. Sweden had industry and a predisposition to do business with Hitler, so she was spared. Norway was, of course, overripe for invasion from 120 years of official neutrality, the longest coastline in Europe, a meager army, and a population of 2.8 million that couldn't possibly, even in its wildest dreams, muster up any hundreds of thousands of reservists.

There is an implicit responsibility upon any author who quotes history to support his thesis, to state the facts as known. Don't twist history; she might twist back.

COL. ROBERT D. BURHANS
Alexandria, Va.

"How Much Forward?"

• The British War Office are anxious to reproduce, in their publication, *Military Intelligence Review*, the article "How Much Forward? How Much Back?" by George Fielding Eliot, which appeared in ARMY for August 1958.

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COL. F. D. PILE
British Joint Services Mission
Washington 25, DC

• *Of course we were glad to grant permission to our British friends.*

No Paper Commissions

• This is an age of inflation, so it is probably natural for some people to conclude that promotions by means of the brevet will help. I refer to "Bring Back the Brevet" in the September issue.

The Army's period of burgeoning growth of a few years ago was the time—if ever there was a time—to revive the brevet. That is the condition under which it was most widely used during the Civil War. During the World War II and Korea build-ups it was undoubtedly considered along with temporary rank and accelerated promotions. The decision to use temporary rank with full pay was made probably to avoid the discontent that would have arisen from the brevet system of more work without more pay.

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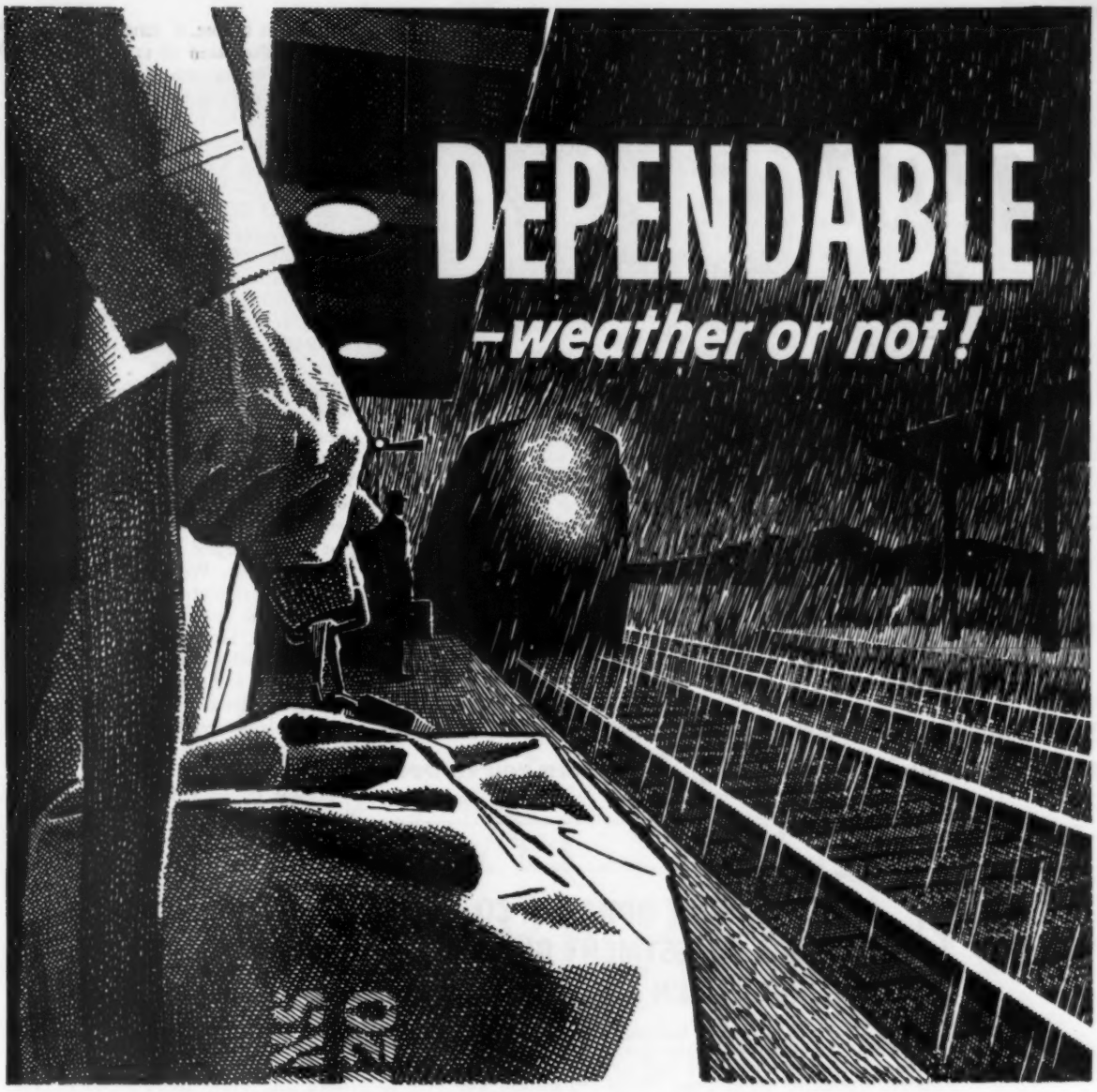

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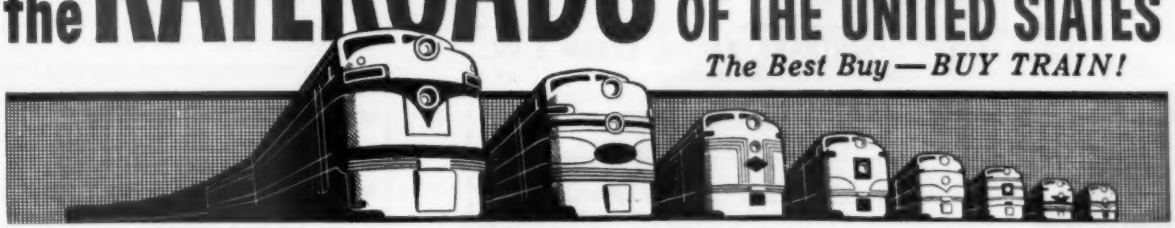

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1505 H Street, N.W., Washington, D.C., Att: General John E. Dahlquist, USA Ret.
Gentlemen: Please forward promptly a free copy of "The Military Investment Manual"
*Name*_____ *Rank*_____
*Post or A.P.O.*_____ *City*_____ *Zone*_____ *State*_____

Now, in a time of contraction, seems the most illogical of all to institute a system of honorary promotions. More people in the same rank merely dilutes the relative importance of the grade, and in the end only encourages agitation for another shot of the same inflation medicine.

I would like to offer a simpler and probably more basic solution. How about a program to re-instill more respect for grades as they are, and to enhance their relative value by reducing the number of people in them? This should make their acquisition more truly a reward than a mere expectation.

During the days between the World Wars my unit instructors (they're advisers now) often told me about the long stretches in junior grades both prior to World War I and after. Those were the years when the field grades really meant something. The mansions at the typical post were occupied by majors and lieutenant colonels. We junior officers had an awesome respect for a field officer. For one thing, he was allowed to wear boots. For another, he was really a respected professional who ordinarily brought credit and prestige to his rank rather than the more usual present-day situation where people strive to get kudos for themselves by being given rank—even if it's only by brevet.

Back in the early thirties, for example, the assistant commandant (the head of the entire academic department) at The Infantry School was a lieutenant colonel; the commandant was a brigadier general. Only a handful of field officers and a slightly larger number of company officers comprised the several sections of the instructional staff, the Infantry Board, and the Department of Experiment. These officers needed no brevet to impress people with their professional competence. Their competence rather seemed to enhance and bring credit to their rank. Among them were Courtney H. Hodges, Easley, Bradley, Marshall, and Stilwell, to name only a few who later became widely known. All had survived the contraction of the Army from its WWI boom days. They valued their field grades because those ranks had not been diluted with excessive numbers holding them.

A man of real ability and professional competence always has been given and always has successfully discharged duties above and beyond his current rank. That's one way in which high command discovers, tests, and rewards young officers of unusual ability. They should be eager for such opportunities and shouldn't fret too much along the way for brevet and other types of paper recognition.

I say let's not print more paper commissions, but get more gold backing behind the ones now being issued.

LIEUTENANT COLONEL

WHY THE XM147E3 IS CALLED THE SUPERDUCK

Through the Sicilian surf they came, with 75's thundering. They blasted the sea wall and kept on going. At Normandy they churned the water and clawed the sandy beaches as they moved in. They met the challenge of the Pacific. Proved their worth in Korea. They earned the tribute of Britain's leader as "the marvelous Ducks of American invention."

With more engineering skill and field experience than any other manufacturer, GMC Truck and Coach Division, in collaboration with the Military, has developed the new SUPERDUCK to the point that it is now ready for full-scale production.

It carries 8,000 pounds of material and personnel at a speed of 55 mph on land or 7 mph on water. It keeps going after almost total submersion; bails itself out automatically; inflates and deflates its own tires; moves up 60% grades.

The SUPERDUCK is tested, proved, READY!

specifications

Cargo capacity:	8000 lbs. (480 cu. ft.)
Fuel supply, full throttle:	9 hours
Fuel supply, half throttle:	18 hours
Range, water, full throttle:	63 miles
Range, water, half throttle:	100 miles

GMC TRUCK & COACH . . . A General Motors Division

HOW MODERN **T58** *POWERPLANT HELPS PROVIDE . . .*

Most Payload Capacity, Highest Performance Capability

GENERAL ELECTRIC T58's GIVE NEW VERTOL 107 GREATER CAPABILITY THAN POSSIBLE WITH ANY OTHER AVAILABLE GAS TURBINE

The U.S. Army's recent announcement that it had purchased a quantity of T58-powered Vertol 107 (YHC-1) helicopters was further evidence of the growing trend to employ the General Electric T58 when seeking the powerplant which provides helicopters with highest performance capability.

What makes the T58 so attractive? Compared with other gas turbine engines in its class, the twin-T58 powerplant gives the YHC-1 *at least* . . .

18% MORE INSTALLED POWER—The T58 is guaranteed to deliver 1050 shp.

7% LOWER SPECIFIC FUEL CONSUMPTION—The T58's SFC rate is guaranteed at a low 0.64 lb/hp-hr.

300 LBS. LESS ENGINE WEIGHT, PLUS INSTALLATION WEIGHT SAVING—The compact T58 weighs only 271 lbs.

These outstanding features of the T58 make it the engine with the highest power-to-weight, lowest SFC of any turboshaft flying today—the only gas turbine now available which provides the Vertol YHC-1 with:

OUTSTANDING RANGE AND PAYLOAD—Light weight, high power, low SFC of T58's give YHC-1 increased range, added cargo- and passenger-carrying capability.

SUPERIOR HOT DAY AND HIGH ALTITUDE PERFORMANCE—Twin T58's have "reserve power" to operate at higher than standard temperatures and altitudes without offloading payload.

UNPARALLELED ONE-ENGINE-OUT CAPABILITY—Even with one engine inoperative, YHC-1 will still be able to continue missions with the power available from a single T58.

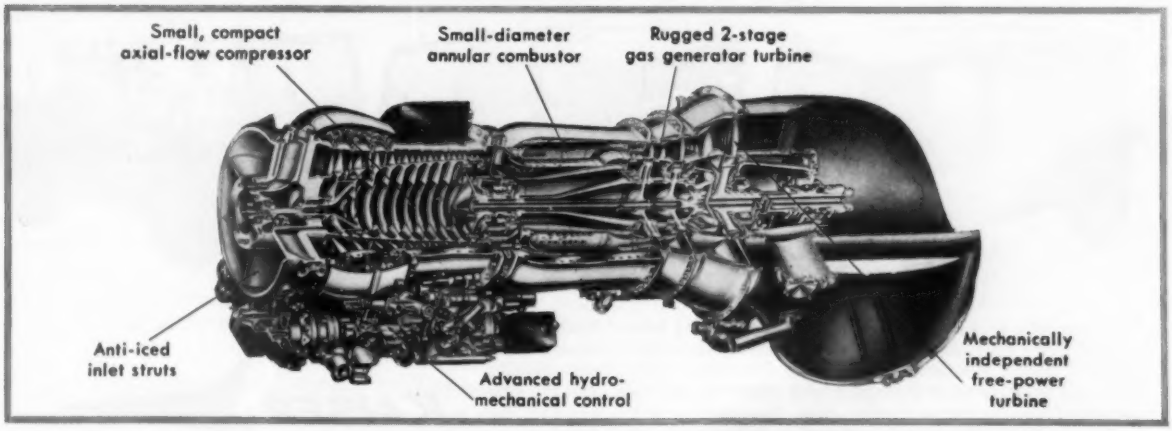
In addition to these operating advantages, T58's are designed for fast and easy maintenance, minimizing helicopter "down-time." When T58-powered Vertol YHC-1's are delivered, they'll give the U.S. Army a full-time airborne mobility never before possible with rotary-wing transports.

For new brochure, "What Does Engine Weight Mean in Dollars To Helicopter Operators," write to General Electric Co., Section 233-19, Schenectady 5, N. Y.

SOME REASONS WHY THE T58 IS EASY TO MAINTAIN

T58 is easily handled due to its low weight, small size, and unit package design of gas generator and power turbine assemblies. Major components can be disassembled with standard tools and a minimum of special equipment.

T58's split compressor-casing (left) permits easy access for changing compressor blades. Split combustor-casing (right) facilitates combustion liner inspection and fuel nozzle replacement. In the field, these operations can be performed without removing engine from the helicopter.



General Electric T58's near 4 to 1 power-to-weight ratio, 0.64 SFC assure top helicopter performance. Modern aircraft gas turbine design principles and development techniques incorporated in the T58 result in proven ruggedness, reliability. T58 gas turbine state-of-the-art provides helicopter designer and operator with a powerplant with "years ahead" ability.

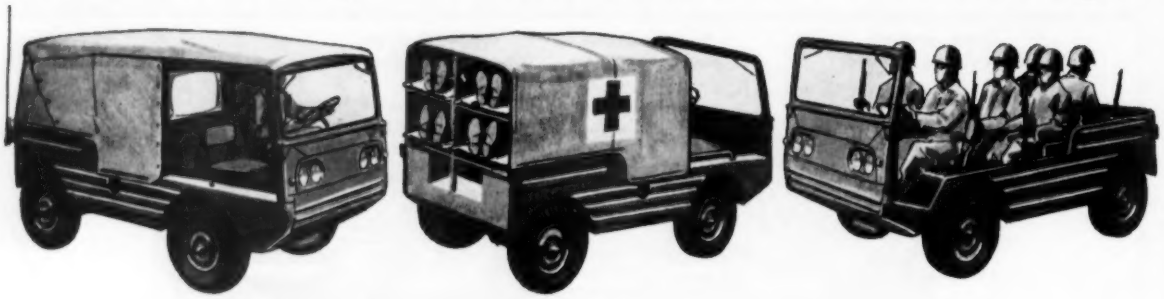
Progress Is Our Most Important Product

GENERAL ELECTRIC

'Jeep' Convertible Cargo-Personnel Carrier

TACTICAL MOBILITY

Another 'Jeep' vehicle meets the challenge!



This new vehicle is designed for mobile, hard-hitting ground forces. It has 4-wheel drive traction and 4-wheel steer maneuverability to move over all types of terrain. It's air-dropable! Three Convertible Cargo-Personnel Carriers can be shipped in the space of a single ¼ ton truck. Yet, the Convertible Cargo-Personnel Carrier does the work of a **three**-quarter ton truck. It weighs 1500 pounds and **carries** 1500 pounds—anywhere!

It converts to a fully enclosed personnel carrier...an ambulance that takes four patients...an electronics vehicle that relays news of the battle by radio and television. Seats fold into the platform for quick conversion to a cargo carrier.

'Jeep' vehicles are produced by Willys Motors—**the** specialist in the lightweight tactical vehicle field. For full information about the Convertible Cargo-Personnel Carrier, write to **Willys Motors, Inc., Toledo 1, Ohio.**

KAISER WILLYS MOTORS

...one of the growing Kaiser Industries

FRONT AND CENTER

Case history of an effective tell-the-truth-about-the-Army effort by an AUSA member who also happens to be a Civilian Aide to the Secretary of the Army: When Mr. Edgar W. Smith of Portland, Ore., read in *The Oregonian*, an editorial that made some surprisingly inaccurate statements about Nike Hercules and supporting Bomarc, he wrote a letter of correction to the editor which was printed prominently on the editorial page two days later. The editorial had stated that Hercules is "pretty much a theoretical weapon," but Mr. Smith reminded the editor that on the contrary Hercules had been fired successfully more than 125 times, that Hercules firing sites were being installed at Los Angeles and elsewhere and that Bomarc cannot become combat ready before June 1961. This kind of fast response to inaccurate statements is a real service to editors, communities and the nation. Congratulations, Mr. Smith!

* * *

If successful, the Army's campaign to reduce the administrative burden of company commanders will unquestionably increase the efficiency of the whole Army establishment and give a big boost to company grade esprit. Inspectors General have been directed to make "elimination of unessential requirements imposed on company-sized unit commanders" a special subject of inquiry. In Circular 20-6 the Army Staff and all field command levels were reminded that continued emphasis "is essential to insure that the prestige attached to company command is enhanced and that freedom of action and initiative of company commanders are not unduly restricted."

* * *

The Army's second Annual Awards ceremony at Washington honored outstanding achievements by civilian employees. A recent Army statement said that its Incentive Awards Program had saved American taxpayers over $17,000,000 last year.

* * *

They have their troubles on the other side of the hill, too. An Associated Press dispatch from Moscow quotes *Red Star*, the Soviet Army newspaper, as saying that Russian troops didn't perform very well during the recent maneuvers near the border of Iran. In one instance a company marched right into a sector that was under a simulated condition of radioactive contamination. *Red Star* indicted commanders who disregarded the nuclear problems inserted into the maneuvers. That kind of attitude, it intimated, results in wasted effort and doesn't give troops practical experience in nuclear war tactics.

* * *

Old soldiers have a lot in common, no matter what uniform they may have worn, and so the possibilities of "Arms of Friendship," a new organization, in promoting friendship between the U. S. and Soviet war veterans, along the lines of President Eisenhower's people-to-people suggestion, is exciting. Arms of Friendship's objective is to reduce the possibility of war by promoting direct friendly contact between individual war veterans of the two nations. Gen. Jacob L. Devers, USA-retired, is Chairman of the Board of Directors of the organization and Maj. Gen. James C. Fry, USA, retired, is President and executive head. Other members of the 24-man Board of Directors include Gen. John Dahlquist, USA, retired, Gen. Charles L. Bolte, USA, retired, and former Postmaster General James A. Farley. Headquarters of the organization are at 4150 Henry Ave., Philadelphia 44, Pa.

* * *

Maj. Gen. Bogardus S. Cairns, Commandant of the Army Aviation Center at Fort Rucker, Ala., sees the possibility of breakthroughs in Army Aviation developments that will give the Army the kind of aerial vehicles it needs and end a decade or more of tinkering with aerial vehicles and equipment, "begged, borrowed and stolen" from the Navy

(Continued on page 78)

11 NOVEMBER 1918-11 NOVEMBER 1958

The AEF after Forty Years

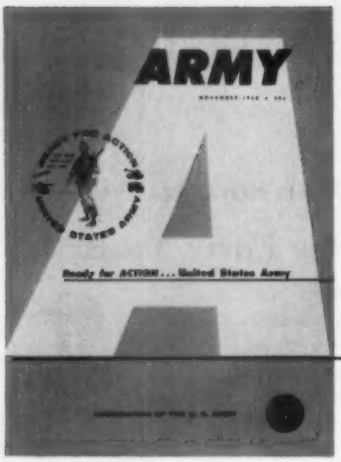
"Give me men who can shoot," said Black Jack Pershing. And the AEF shot its way into history at such places as Cantigny, Belleau Wood, Chateau-Thierry and Argonne Forest. But the perspective of history suggests that the most lasting contribution of the AEF to the U. S. Army was faith: faith in itself and in its ideals.

The AEF believed in itself because its leader, Pershing, taught it to. He insisted that if every man in the AEF would act like a soldier he would be a soldier.

No matter how deep the later disillusionment, the AEF believed in its cause, believed it was fighting to make the world safe for Democracy. The AEF would not have understood brain-washing.

Today, forty years later, the pride of the AEF survives. Though its ranks are thinning, men still stand tall when they say, "I was in the AEF."

Donald Dickson, *Infantry Journal*, 1938



A is for ARMY

THIS has been a good year for the U. S. Army. Not a truly remarkable year, but a year in which the Army scored some solid achievements.

It will be distinctly remembered as the year the U. S. Army launched the Nation's first earth satellite. (Historians of the future will footnote the fact that Explorer I could have been launched in 1957 and before Sputnik I.)

But there were other solid achievements of the U. S. Army in 1958, *to wit:*

The Strategic Army Corps (STRAC) was organized as a force "ready for action, any kind, any place, any time."

Nike Hercules batteries began to replace Nike Ajax as the Nation's No. 1 air defense weapon and a Nike Hercules outfit was air-transported to Formosa.

The Army's readiness was made manifest in the fast preparation for deployment of the airborne battle group and other units that were sent to Lebanon. This operation made it possible for the Army to test the air transportability and logistic capabilities of its Pentomic organization in the movement of an airborne battle group and supporting forces.

But what was more important about the Lebanon operation was its demonstration that today, as in the past, the trained U. S. soldier can rise to the occasion. "Somewhere under the sun there may be a harder, more enthusiastic training, though this I doubt," Brigadier General S. L. A. Marshall wrote of the troops in Lebanon in these pages last month. "They had come to the Levantine coast expecting war, or they knew not what. Landing, they were braced to meet danger. When they learned almost overnight that the situation was cooling, they turned serene and relaxed faces toward the Lebanese, and they won a nation of friends and high respect for the Army uniform."

There were other achievements.

A new family of rifles was adopted and the M14 went into production. Calibered to the 7.62mm NATO round, the M14 and M15 rifles will replace the M1 (Garand) rifle, the submachine gun, the carbine and the Browning automatic rifle. These, with the M60 machine gun, adopted in 1957, give the infantry squad lighter weapons and more firepower.

There were other achievements in electronics, in missiles, and in ground and air vehicles.

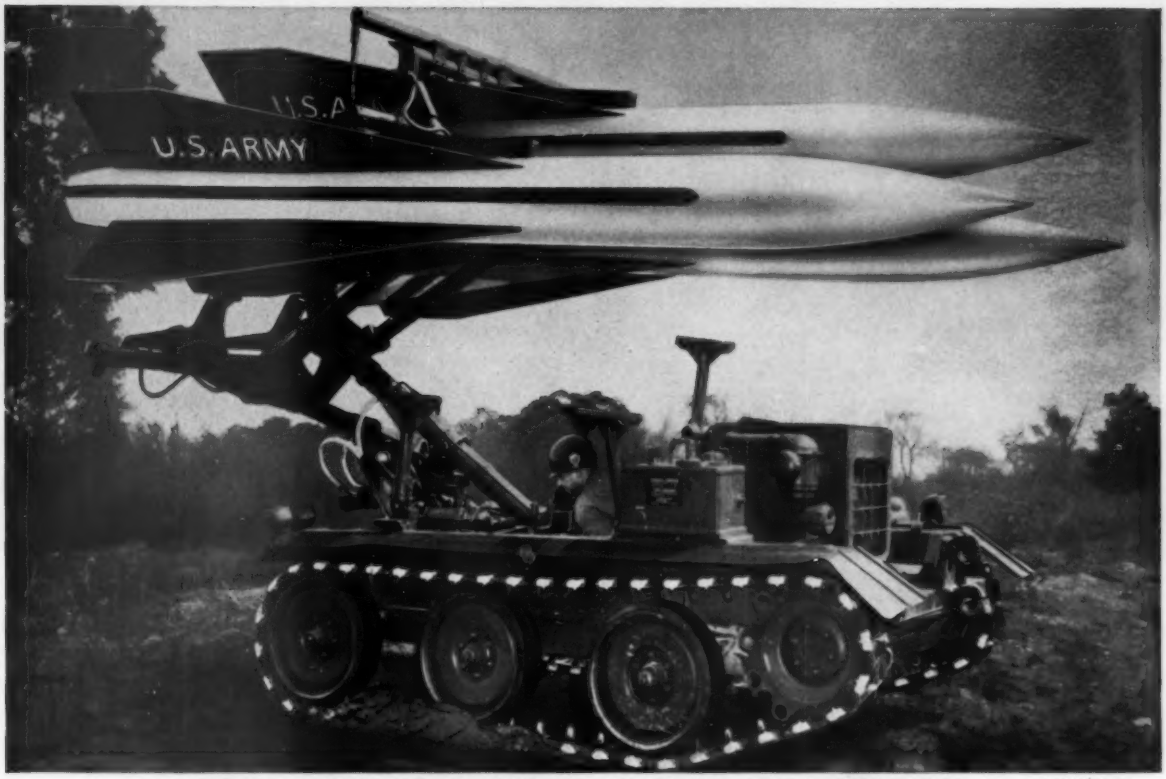
All these demonstrate that critics simply don't know what they are talking about when they say that the Army is so engrossed in missiles and space flight that it has forgotten the ground combat soldier.

Every missile the Army builds has the purpose of furthering the Army mission of sustained ground combat. The Nike Hercules air-defense missile could be airlifted to Formosa because it was built to be airlifted—to provide the Pentomic field army with a modern air-defense system.

(Continued on page 76)

...speaking of

Missile Ground Support **MOBILITY**



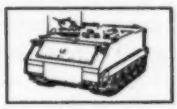
U. S. ARMY PHOTO

THIS PROJECT WAS MADE-TO-ORDER

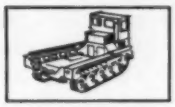
FMC has designed and produced more military-standardized tracked vehicles than any other company in America. So, when Northrop Aircraft, Inc., subcontractor to Raytheon Manufacturing Company on the Army's new HAWK weapon system, needed a rugged mobile transporter-erector, they came to FMC. The vehicle had to be capable of operating in rough terrain, powerful enough to transport three HAWK missiles, and light enough to be air lifted by helicopter. Northrop and FMC engineers worked out the design concept, FMC engineered and built the vehicle portion of the unit; and today this speedy carrier is in production at FMC as part of the Army's HAWK weapon system.

With more than 17 years' experience in the design and production of military equipment, FMC is prepared to handle your missile ground support equipment project – from concept to delivery – on schedule. *Consult FMC at the initial stage of project planning.* Contact us for more information.

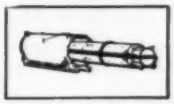
FMC'S PROFILE OF EXPERIENCE:



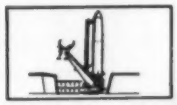
Multi-Purpose Vehicles



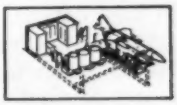
Prime Movers



Shipping & Storage Containers



Launcher-Erectors & Power Units



Propellant Handling Systems

Creative Engineers: Find stimulating challenge at FMC's Ordnance Division

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

Ordnance Division

Missile Equipment Section 4-G

1105 COLEMAN AVENUE, SAN JOSE, CALIF.

The Carpenter and the Gate

A fable about building a better defense

ONCE upon a time there lived a famous carpenter who could build almost anything. He was hired one day to construct a huge gate for a new wall that surrounded an old city. It seems that the enemies of the city had grown stronger and protection was needed from attack. As he started to measure the gap in the wall to get the dimensions for the gate, he was beset by several groups of people quarreling over the kind of gate the city needed. Some said that the wall didn't need a gate because armed groups of citizens roving outside the wall could take care of an enemy attack. Others said

New Dimensions for Air Defense

A true story about building a better air defense

WE need a better evaluation of our continental air defense requirement in order to design a more effective air defense system. Like the carpenter who built a gate that lasted, we must take a sound and reasoned approach to the problem.

As a matter of fact, building an effective air defense is not unlike building a gate *(Figure 1)*. First you must know the requirement for air defense; that is, see the gap in the wall. Then you measure the concepts based on this requirement with appropriate and valid units of measurement to get an idea of size and dimensions. With these dimensions you evaluate the various system concepts for effectiveness—which one (or combination) will make the strongest gate? Finally, based on a complete and thorough judgment of all the dimensions involved, you build the best air defense you possibly can.

Air defense today is an important issue that deserves national attention. It is important that every citizen of this country understands the vital nature of air defense because his future may depend on the effort he believes is necessary to achieve and maintain this deterrent to war and protection from attack. This is the purpose of this article: to emphasize the new dimensions of air defense.

One hundred and forty-three years have passed since the Continental United States was last attacked by a foreign foe. It could happen again and with results much different. We must assure ourselves that the probability of our surviving an aerial attack is high enough to insure a restoration of a sound national base to win the ensuing war. We cannot do less.

We speak of our deterrent forces—of STRAC, SAC, and the NATO shield. As long as the United States is open to attack, we do not have superiority in the matter of deterrence, no matter what the power of our retaliatory attack. We have at best equality only. Since the enemy will strike first, our retaliatory forces may be rendered impotent before they can be used. A strong continental air defense is clearly an important part of our deterrent capability.

The purpose of air defense is to save a large percentage of the country and our retaliatory forces from

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Major Patrick W. Powers, *Artillery,* on duty in the Office of the Chief of Research and Development, has been active in the guided-missile field since 1950 when he earned a Master of Science degree at the University of Southern California. Major Powers has written several articles on missiles for this magazine since 1952.

that the wall with its high watch towers was expensive enough and that a strong gate wasn't in the budget. Still others maintained that whatever was built, it should be made of materials that they sold in the market place because everybody knew they had the best products.

At first the carpenter was a little puzzled over all of the clamor; then he got a little angry at the interference. He marched straight to the mayor. "I've got a job to do and I know how to do it," he told the mayor, "but I can't do it if the whole city is going to kibitz me." He told the mayor he would first measure the gap in the wall to get the size of the gate. Then he would sit down and design a gate and write the specifications of materials to be used. These important preliminaries over, he would build the gate, one that would keep out all the city's enemies for many years to come. "But if I'm going to do this, Mayor," he said, "you've got to keep all these people out of my hair."

The mayor then became a little angry and told the people to leave the carpenter alone because he knew what he was doing and had a good approach to the problem. The mayor reminded the people that a wall was only as good as its gate and that this all had a bearing on the future existence of the city. The people went away muttering, but there was no more interference and the carpenter built a fine gate. It lasted for many, many years and protected the city from all its enemies. Some people still say that if it hadn't been for the carpenter and his wonderful gate that city and its citizens would have been destroyed long ago.

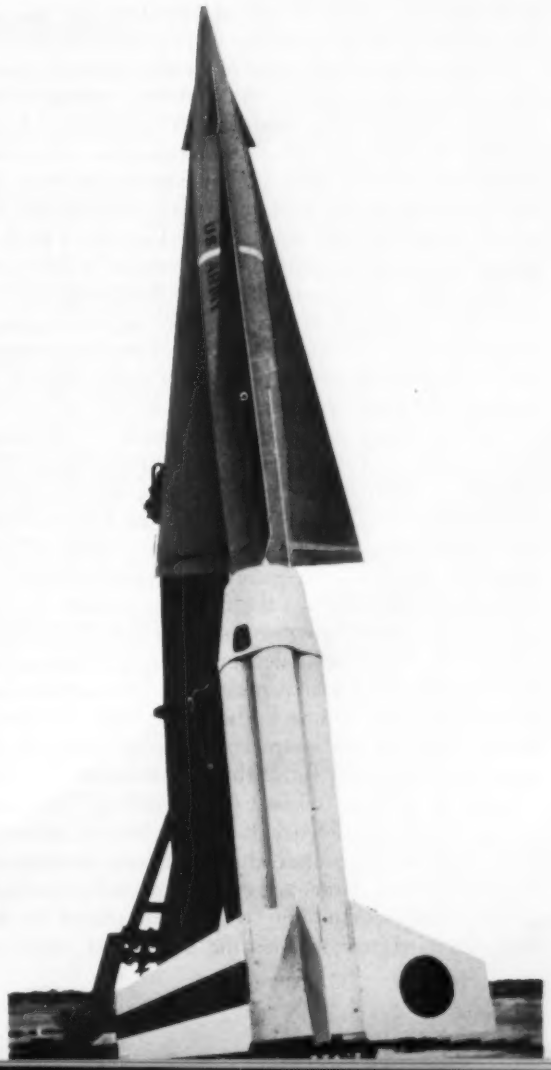
destruction by air attack. Air defense must achieve a high level of effectiveness by denying penetration of attacking weapons systems whether they are aircraft or missiles. The key areas of interest are the enemy threat, the target areas and the defense system itself.

What is the nature of this threat? *Figure* 2 shows the availability of enemy weapons systems on a general time basis. The chart is a general representation of this information and does not apply to any specific intelligence data. Note the phasing out of the "piston bombers" as jet bombers and missiles become operational. This emphasizes the changing nature of the air threat. The attacks by these threats can be high or low altitude, mass thermonuclear, and even one-way missions by aircraft. In the near future, the ICBM will become the dominant threat.

The target areas that these weapons will attack are industrial areas, population centers, and strategic military installations including our retaliatory forces. These targets are easily defined in the United States since it is well known that thirteen per cent of our country contains eighty-five per cent of the war industries and fifty-nine per cent of the population. The air defense system must evaluate such targets as to their criticality, assailability from various directions and altitudes, vulnerability to nuclear bombs and warheads, and recuperability after attack.

The Air Defense System

Let's examine the air defense system before we measure it for its critical dimensions. Basically, an air defense system contains both active and passive means of defense. The present active measures include missiles, electronic environments and aircraft. We are concerned



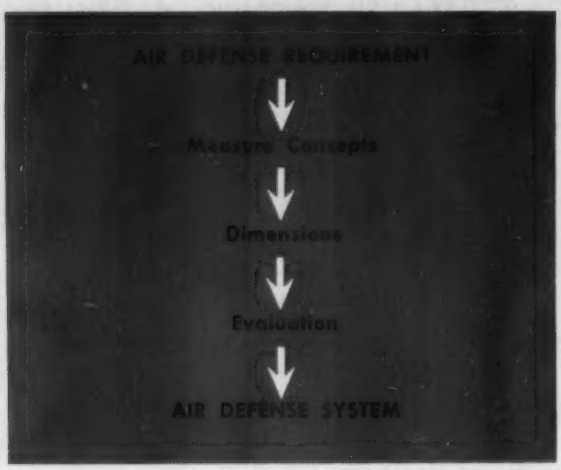


***Figure 1.* Building a Better Air Defense**

only with the active measures. Passive measures may involve underground protection, civil defense organization and the will and spirit of the people. The two concepts of air defense that are of current importance are the "area" and the "point" or "local" defenses. They differ not only in their tactical operation but also in the type of defensive weapons employed.

An area defense makes use of a radar network spread over a large area, such as the northern approaches to the Continental United States. This system has a large number of interconnecting communication links and centralized computer control. Information on potential enemy threats anywhere in this area is continuously received, processed, and acted upon. The use of such a ground environment permits the control of a defensive weapon over a large area. Therefore, these weapons can be located in a small number of bases within the large defended area. The use of relatively long range weapons is designed to permit the enemy to be stopped as far from the protected area as possible.

Such a system is vulnerable in each of its many parts and may not survive in a battle environment. The weapons it controls cannot protect its own radars or computer control. This is because of the long reaction time deliberately imposed on the long range of the defensive missile. The enemy could easily mount a methodical attack against the far-flung portions of this system and render the entire system useless. The system is based on the desire to destroy enemy weapons as far from the defended area as possible and to continue the attrition as they approach the target area. Unfortunately, there are no weapons systems in being or on paper that can really fulfill this requirement.

Local air defense is based on a building block concept in which the defense of a given area is achieved by the multiple use of individual, identical, autonomous weapons systems. Autonomous refers to a self-contained, self-governing system. The weapons are placed on the local defended area, and as the number of units increases, the defense is expanded from the inside out. This design keeps the weapons where the battle is going to be, following the Principle of Mass. Each of these individual defensive units consists of the minimum amount of equipment required to produce a completely self-sufficient system. For example, in a local defense system the required ground-based radars, computer, launching area, and missiles are all located as close together as possible. This is done for two reasons. First, self-protection is easily achieved since any attack directed at the defense unit itself, or the particular area which it is defending, places the enemy in the most favorable position for counterattack by the defense units. This is true because the rate of kill of the system increases as the enemy comes closer. The system's reaction time, part of which is missile flight time, also decreases as the enemy comes closer. Thus, all local type defense units have a kill capability which increases rapidly as an attack is directed toward the general vicinity of the unit itself. It is this characteristic which allows the concept of denial of penetration to be achieved by a localized defense made up of a large number of individual point defense units. The flexibility achieved allows the air defense planner to extract from the enemy whatever price of admission is considered appropriate to the particular target area being defended. In some cases, this price of admission may well be the entire enemy offensive force. The second reason for utilizing local area type weapons is a matter of system flexibility. Obviously, since each one of these local type systems is autonomous, a defense complex built up of a number of these individual units is not vulnerable to attack in each of its several parts; that is, the killing of one unit of the defense has no effect on the operation and kill capacity of the remaining units in the complex.

The choice of weapons

Let us now consider for a moment an over-all defense problem such as the defense of the entire Continental United States. Obviously this is a large area. Must we, therefore, use area weapons? There are no so-called area weapons which are capable of defending the entire United States. However, the military planner by using the required number of weapons systems can produce a complete air defense coverage of the United States by using either area type weapons, local area type weapons, or a combination of the two. The choice is dependent upon many factors, not the least of which is cost. In fact, within a limited budget, which of course is the primary restriction on all activities of our Defense Department, one of the overriding factors becomes that of cost effectiveness. Numerous studies and analyses have shown that, contrary to what might have been expected intuitively, a large number of small systems actually cost less than a small number of larger systems. Some years ago this conclusion was questioned; however, this realization of relative cost effectiveness is becoming more apparent. Much of this great difference in cost is due to limited production of the large systems.

READY FOR ACTION
any time, any place!

Army YHO-2HU Helicopter

For reconnaissance and liaison, the company commander needs a ruggedly built helicopter...one that operates for long periods of time without being laid up for repairs or time consuming maintenance.

The Army YHO-2HU two-place helicopter (Hughes Model 269A), which is now under evaluation, fulfills this need. It features simplified design, highly reliable components, and ease of maintenance. The YHO-2HU is always ready for action.

At a recent Maintenance Inspection Conference, the first ever to be conducted under Army leadership, quick removal and replacement of dynamic components were demonstrated. The power plant package was removed and reinstalled by 3 men in only 43 minutes. A main rotor blade was removed and installed by 2 men in just 6 minutes. No special tools or lifting equipment were required for these operations.

The YHO-2HU, designed specifically for the two-place mission, for the first time makes it practical to have a helicopter at the disposal of the company commander. With its hedge-hopping abilities and extremely small silhouette, the YHO-2HU will reduce the hazards of enemy fire. The small size gives it additional combat advantages – it is easy to land, park and conceal.

The YHO-2HU is a fully reliable, easily maintainable, high performing, low-cost two-place helicopter. With its proven 180 h.p. Lycoming 0-360 engine, the YHO-2HU flies at a speed of 90 m.p.h. and has a cruising range of 150 miles. It has a useful load of 660 pounds and an empty weight of 890 pounds.

For an illustrated brochure describing the YHO-2HU please write to the address below.

HUGHES TOOL COMPANY

AIRCRAFT DIVISION

CULVER CITY, CALIF.

The dimensions of air defense

Perhaps the most important—and least understood—step in the operation of building a better air defense is getting the right dimensions. The air defense of a large part of a continent is a complex business and the method of expressing the defensive capabilities is complicated also. It is fundamental that the "units of measure" which describe any concept be valid and cover as many significant capabilities as possible. *Figure* 3 lists some eighteen of these factors from "accuracy" to "vulnerability." This formidable list consists of technical as well as tactical dimensions and by no means should be considered final. It does, however, serve to illustrate that there is no way to put air defense into a capsule for easy consumption. All of the parts must be considered before an evaluation can be made.

These dimensions apply for the most part to the weapons systems that provide the killing capacity for a dynamic air defense. Warning and detection systems are always important but only as they contribute to the effectiveness of the defensive weapons.

We will not define or analyze each of the factors in *Figure* 3 but rather emphasize their general application toward an evaluation of a given concept. As an example, "availability" has a double meaning when applied to a weapons system. Generally, we can compare the predicted availability of air defense weapons to the predicted threat. This is done in *Figure* 4 with the same time scale which was used in *Figure* 2. Note particularly the phasing out of guns followed by interceptor aircraft, manned or unmanned, and the ascendency of guided missile weapons of advance design. When applied to a specific weapons system, availability should imply reliable, production-line weapons in the hands of qualified military users. No other meaning is valid. There is a predominant tendency today to oversell weapons when they are merely refined ideas and concepts, or at best, hand-made prototypes undergoing research and development tests.

The space-time intercept problem

Much emphasis has been placed on the range of a defensive weapon. This capability by itself is meaningless. It is the effective intercept range at a certain altitude against a specified enemy threat which is important. This means that the detection, tracking, and control system must match the range, altitude and accuracy characteristics of the defensive weapon. Speed should also be considered with range because of the space-time intercept problem of the supersonic threats shown in *Figure* 2.

Most of the other factors have been mentioned in conjunction with the explanations of the area and local defense systems. "Lethality," however, should be mentioned as a critical dimension for any defense. This term deals with the number of kills that can be achieved in a certain combat environment. It is a complex process of interrelating some of the other dimensions: response time of the weapons system, the rate of fire, accuracy and reliability. No two groups of people will arrive at the same figure because the assumptions about the tactical environment will always differ. Thus, one system may look as good as another on paper with intuition playing a prominent role in the evaluation of the expected results. These results must be studied carefully to insure that the basic assumptions are realistic and based on past experience.

The evaluation of air defense concepts

The new dimensions for air defense provide the basis for evaluating any given concept. All the dimensions that can be measured must be considered, for no single capability determines the effectiveness of any weapon or concept.

The evaluation should result in an air defense system with a high level of effectiveness over a long period of time. The objective of this defense is deterrence. There is no peak year for threats. There should be no race to build a particular weapons system. A continuing

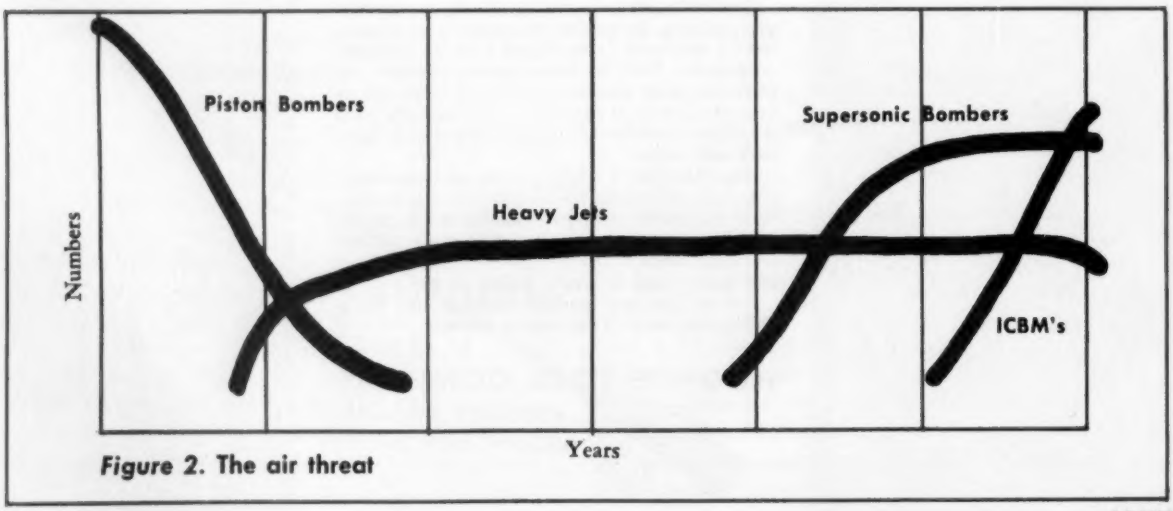


Figure 2. **The air threat**

ACCURACY	KILL CAPACITY
AVAILABILITY	LETHALITY
ALTITUDE	RANGE
AUTONOMOUS	RATE OF FIRE
COST	RATE OF KILL
COST-EFFECTIVENESS	RELIABILITY
DEFENSIBILITY	RESPONSE
EFFECTIVENESS	SPEED
FLEXIBILITY	VULNERABILITY

Figure 3. **The New Dimensions of Air Defense**

high level of effectiveness is achieved by planning research and development and procurement programs leading to an orderly succession of weapons systems.

The weapons system programs must be continually re-evaluated because of high obsolescence rates resulting from technical progress in offensive and defensive capabilities and long lead times caused by the complexity of modern weapons. Certain alternatives can always be left open. Next year's solution should be determined by next year's knowledge—not predetermined by the lesser knowledge of this year.

Results may also show that if a weapons system is strong enough, it may never be used. We must buy such effectiveness by the year, for several years, and then continually update our analysis.

Any effective evaluation must produce an air defense system which meets the present air threats and will grow to challenge and defeat the predicted threats. There can be no shut-down of this capability because the threat exists right now, twenty-four hours a day. If offensive air weapon speeds and altitudes continue to increase, then the future defensive weapons must outperform these threats. This logically demands the high performance found only, within our present scope of developments, in the rocket-powered missile with the short response time. Can this be disputed? Not if such a rocket weapon is combined properly with the other elements of a defense system.

AS we look at our national security posture today, we can see a need for better criteria to measure our air defense requirement. The lack of an appropriate yardstick that is graduated in sufficient and valid dimensions can prevent the design of an effective air defense. The "carpenters" of an air defense system should remember that *all* dimensions must be considered. To emphasize any individual capability of a weapons system is like making a quote out of context: the facts can be distorted.

We cannot afford such manipulations of a vital means of national survival. Not only do range, altitude, speed, lethality and reliability of defense weapons have a bearing on a strong air defense, but also their interrelation with the expected combat environment against present and predicted threats. A weapon's capabilities must also be considered along with availability and cost. Never underestimate the value of in-being weapon hardware installed on-site and ready for action. Such "birds" in hand are worth more than two in the development bush.

The final judgment on a program for air defense is this: does it contribute to the strategic position of the United States? Such a program must contribute substantially to the probability of avoiding war through deterrence or of winning a war if it occurs. If we are going to have a strong and effective program, we must be able to recognize the dimensions that are really important.

Let's start building a better gate now!

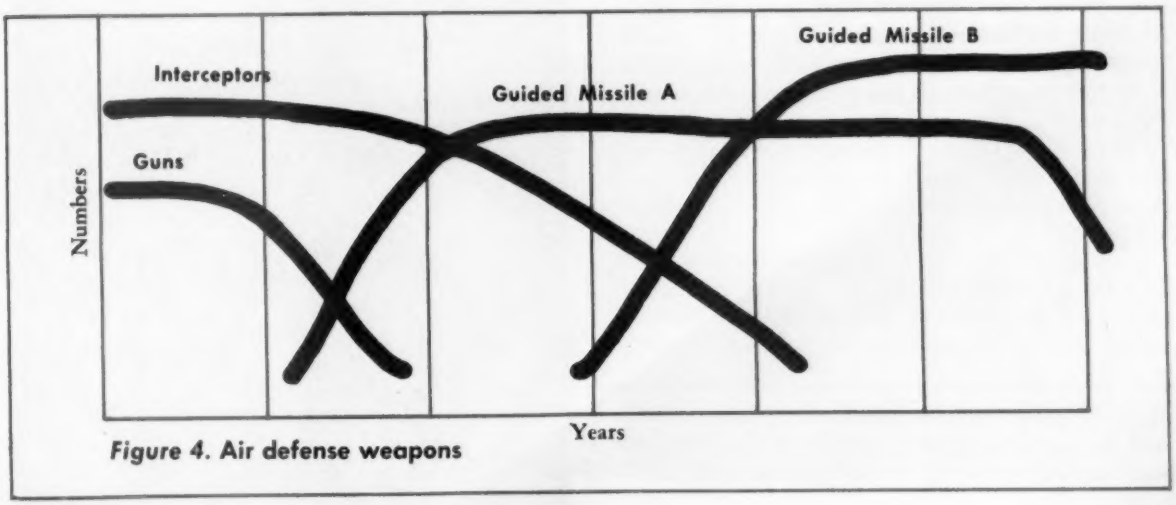
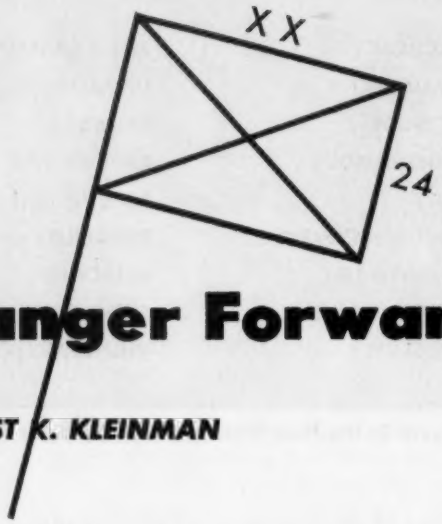


Figure 4. **Air defense weapons**



The Tactician of Danger Forward

MASTER SERGEANT FORREST K. KLEINMAN

THE situation map looked like Salvador Dali's interpretation of an alcoholic nightmare. Red and blue symbols were so jumbled and intermeshed that the map could have been turned upside down or even sideways with no appreciable change of appearance.

"It looks as though you'll have to pull back and organize a new defense line," said General J. Lawton Collins, Army Chief of Staff, who had arrived at the 24th Infantry Division's Command Post by plane an hour earlier.

Lieutenant General Walton H. Walker turned to the division commander. "What do you think, John?" he asked quietly.

John Huston Church, lean, poker-faced, single star on open shirt collar, shifted the cud of tobacco in his leathery cheek and stared at the map. When he had taken over the 24th less than two weeks ago, the Division was in a "quiet" sector on the Naktong River. It needed a quiet sector to recuperate after the mauling it got during the first month of the Korean conflict.

But the Communist high command had other plans. They chose the thirty-mile frontage thinly held by the half-strength 24th Division to break through the Pusan Perimeter. Their attack was preceded by several nights of intensive patrolling all along the river. Then came that midnight when the enemy patrols didn't withdraw, but pressed on. By dawn, the situation map showed more than a dozen big red arrows firmly planted across the river, digging deep into the 24th Division's battle position.

Ignoring the enemy-strength estimates posted beside each arrow, General Church that morning studied the terrain with the discerning eye of lifelong habit. In the extreme west of his sector, a vertical corridor and a good road coincided with the axis of attack. The remainder of the area was a cross corridor, the main road running perpendicular to the axis of attack along the base of a towering ridge about six miles behind the United Nations line. The ridge was impassable except to foot troops.

General Church's decision: to counterattack at once with all three regiments against the enemy penetration in the extreme west. The seemingly herculean task of defending the remainder of the front was handed to the 24th Division's engineer combat battalion.

Events soon confirmed General Church's quick diagnosis of the enemy's intentions. The imposing red arrows in the center and east proved to be combat patrols executing feints. But that small one in the west swelled into a corps bridgehead. T-34 tanks and self-propelled artillery poured into it over an underwater bridge. To

During a visit to Danger Forward, "Lightning Joe" Collins gives his battle commander a reassuring pat on the back

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Master Sergeant Forrest K. Kleinman, a frequent contributor to this magazine, served as a major in Korea. His latest article was "Ad Libs of War" in the September issue.

stem the Red advance—even temporarily—the three regiments of the 24th had repeatedly counterattacked. Had they not been committed simultaneously and without delay, the Pusan Perimeter might have been irreparably broken during the first forty-eight hours. For at the time a lone tank company was the only reserve behind the embattled Eighth Army's front—and General MacArthur himself had a string on that, so perilous did he deem the situation at the Perimeter.

During the next few days the situation went from bad to worse. Despite the leadership of officers like Lieutenant Colonel Oliver G. Kinney, who gallantly led an assault by the 2d Battalion of the 19th Infantry after flying to Korea from a PMST desk at the University of California. Despite the heroic efforts of marksmen like Sergeant First Class Arthur C. Dudley, whose M1 rifle accounted for fifty-two known enemy dead.

Artillery shells began to fall around the 24th Division's advance command post—aptly named Danger Forward. Infiltrators in large numbers began to fire on all roads and trails connecting CPs, aid stations, and other rear installations. Communication except by radio was cut between the Division and its regiments, between regiments and battalions. Meanwhile, the enemy bridgehead continued to expand, lapping like molten lava around the 24th Division's centers of resistance

No wonder the situation map looked like a nightmare!

Effect of imagination

General Church stared at the nightmare—conscious of the authoritative presence of the Army's Chief of Staff and Eighth Army's commander. Conscious, too, of the fact that they had given him a chance to retreat without losing face. All he need do was take the option offered.

"No, sir," he said. "We would lose so many men, vehicles and guns in these fire blocks that we wouldn't be able to defend a line farther to the rear. I'd rather stay here and fight it out!"

Generals Collins and Walker beamed approvingly—much as if this were the answer they had wanted to hear from the battered division's new commander.

"Now about that reserve tank company we can't commit . . ."

General Church paused and drew his distinguished visitors aside. Though his staff couldn't hear what followed, they were intrigued by the broad smiles of General Church's listeners. It seemed the three were sharing a joke that tickled their hearts.

General Church (seated and facing beer case) visits the command post of the 21st Infantry near P'chang-dong

That night a hybrid battalion was born in the 24th Infantry Division. In its ranks were the CP defense platoon, the public information section, cooks, musicians, typists, MPs, stragglers, walking wounded—virtually everyone who wasn't already in contact with the enemy.

Just before dawn a distant grinding noise was heard. As it grew louder and louder, a wave of hope surged through the Division's cut-off elements. Tanks coming up from the rear! American tanks! To the enemy, it must have sounded like heavy reinforcements for a counterattack.

General Church quickly dispelled any conjecture in his own CP about what the tanks were to do. "They are only borrowed for a day, and I can't commit them. But," he added with a twinkle in his eye, "that doesn't mean they can't shoot back when they go through a fire block on the road!"

All day the "uncommitted" tank company barreled up and down the roads leading to the front, carrying temporary doughboys of the composite battalion. Occasionally the staccato of machine guns, punctuated by the *crack-bang* of tank guns, drifted back to the Division's CP. Each time the firing ebbed a radio report, "mission accomplished," came in, and the operations sergeant used his lighter fluid to erase another red symbol from his situation map.

When the tanks returned at nightfall, the operations sergeant's lighter fluid was almost exhausted. But communication among all elements of the Division had been restored. The temporary doughboys were laden with Russian-made souvenirs.

The situation map no longer looked like a nightmare.

"From now on," General Church said to his G2, "tell your people not to draw the enemy symbols so big."

Boldness without dramatics

The effect of all this upon the enemy went far beyond the losses inflicted upon his infiltrating forces. Alarmed by so much tank activity behind our lines, he stopped expanding his bridgehead and dug in for defense against the armored counterattack that seemed so imminent. The precious time gained enabled the 24th to contain the enemy until Marine Corps and 2d Infantry Division reinforcements arrived on the scene a few days later.

That the enemy commander paid dearly for his mistake was soon evident. The 24th Division celebrated its ninth anniversary on 25 August 1950 by completing the destruction of the North Korean 4th Division—one of the invasion spearhead units that had so severely mauled it in July. That night Seoul City Sue announced over the radio that the North Korean general commanding the bridgehead troops had been named a "Hero of the People's Armies"—the sure kiss of death for a defeated commander in Communist lingo!

The American press said hardly a word about the real hero, John Huston Church. He won the battle, but others got the glory.

This is not to blame the able correspondents who were there. The action on the bullet-swept hills of the Perimeter during those hectic days was much more dramatic—much easier to portray to the public—than what was happening in General Church's mind.

Outwardly, General Church was one of the least dramatic of the combat commanders in Korea. No grenades slung from shoulders. No ivory-handled pistols. No saddle on the hood of his jeep. No scrambled-eggs cap, flowing mustache, nor corncob pipe. His only tag was that tool of the tactician—the unphotogenic grease pencil.

Recalling that the General had earned the DSC in World War I, his PIO raised the subject in desperation one day during an especially colorless interview with the press.

"Simple mathematics," General Church replied matter-of-factly. "I was leading a rifle platoon across an open field six hundred yards long. The Krauts held their fire until I was only two hundred yards away. It was four hundred yards under machine-gun fire to go back and only two hundred yards to go forward. So I went forward."

His soldiers in Korea—and they really were *his* after the Naktong River battle—neither worshiped nor feared him. They merely accepted him as one of themselves. A 21st Infantry platoon sergeant spoke for the entire Division: "He's just as common as an old shoe—and a mighty good fit the shoe is in the pinch!"

'That's where the pheasant is'

Like General George S. Patton, whom he warmly admired but never aped, General Church liked to hunt. Whenever the Division was in reserve, he frequently took off across the fields with an aide, a radio, a shotgun, and a dog that had joined up somewhere between Pusan and the 38th Parallel. The aide's job was to keep in touch by radio with the CP.

"He doesn't really need the dog," the aide said. "He just studies the ground and picks the position *he* would choose if he were a pheasant. And sure enough, that's where the pheasant is."

Thousands of former members of the 24th Infantry Division are alive today because of General Church's ability to study ground and see a situation through the eyes of an opponent. No matter what the enemy appeared to be doing, he never forgot that depending upon the mission, tactics must be tied to terrain, time, and space. No matter how favorable the tide of events, he never forgot that the enemy is always watching for a chance to turn the tide.

It's a long way from the Naktong to the Chongchon River, yet by the beginning of November 1950 Danger Forward is there. The North Korean Army is virtually destroyed. Motorized columns of the 24th Division race north along the west coast with little to delay them but the crowds of North Korean villagers who are trying to get their homemade United Nations flags and victory arches up before the Americans arrive. Plans are

Drivers of a rear-area outfit watch an element of the 19th Infantry move through on the advance to the Naktong

already drawn to return the Division to Japan as soon as it reaches the Yalu River.

Word comes back to Danger Forward that Task Force Smith (first to arrive in Korea) is only seventeen miles from the Yalu. Still advancing! Still no resistance!

Trained intuition of a superb tactician

But General Church frowns at a report that enemy jets—repeat jets—have just strafed Division artillery positions. He studies the wide gap on the situation map between his right flank and the 8th Cavalry Regiment. His frown deepens. Then he looks at the lone bridge over the deep Chongchon behind the right flank of his division, and he picks up a field phone.

His first call is to the I Corps commander, Lieutenant General Frank W. Milburn. It ends with General Milburn saying: "All right, John. If you think so, that's good enough for me."

The next call is to his regimental commanders: Execute at once the emergency maneuver that General Church explained when he visited them earlier in the day.

The motorized columns halt so near the Yalu that the leading men claim they can smell it. Profanity blues the peaceful autumn air. Helmets are thrown to the ground in bitter frustration. But around the columns go, racing back down the roads in time to eat their own dust.

At Danger Forward the operations sergeant is again using up his lighter fluid at a rapid rate. But this time the arrows he erases and the bridgehead replacing them are *blue*. Not one red symbol anywhere in the Division's zone of attack!

No sooner have the men the blue symbols represent begun to dig in, however, than a big red arrow appears from the northeast. It aims at the Chongchon River bridge—the Division's sole link with the rest of Eighth Army. It represents a crack Chinese division, so hastily committed that many of its men still wear dress uniform.

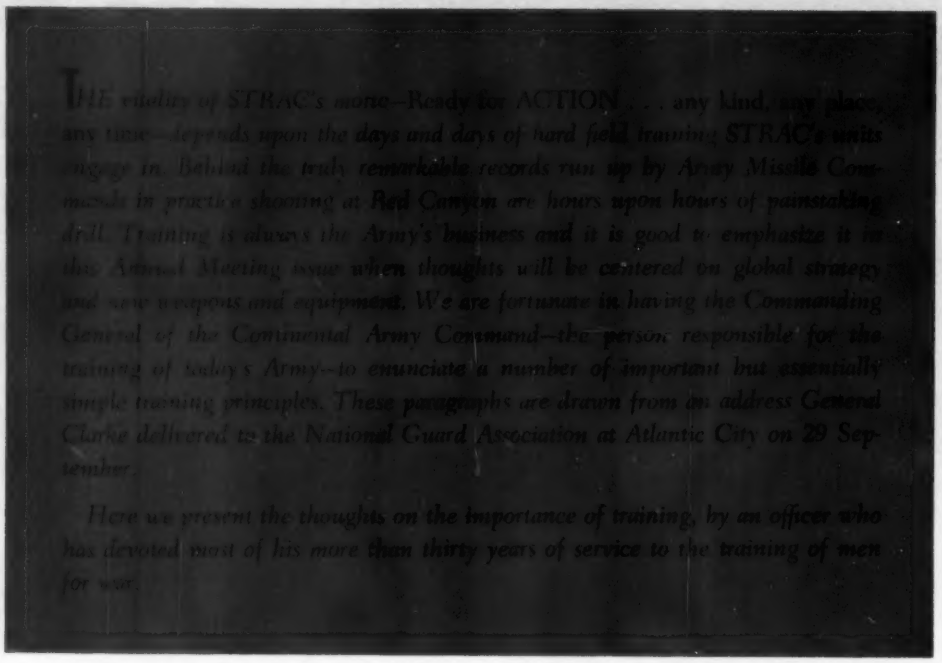
All night long, that red arrow stabs at the 19th Infantry, holding the right of the bridgehead. But the famed Rock of Chickamauga regiment stands again a rock.

In the morning more than six hundred Chinese dead are tallied in front of the bridgehead's foxholes. Some thirty-odd bodies are strewn before the muzzle of an automatic rifle that had been manned by Corporal Red Cloud, first of the Division to be awarded the Medal of Honor posthumously in Korea. The bridgehead and the Division are saved.

Once again an enemy commander is a prime candidate for the dubious honor of "Hero of the People's Armies." And once again the trained intuition of General Church casts the deciding vote!

It is appropriate to the memory of General Church that the Chongchon bridgehead battle be described in the present tense. For, although he died in 1954, Major General John H. Church still lives in the lives and in the works of the men his tactical skill saved there to serve again.

There is no way of knowing whether or not he would have been as skillful at any other profession, because he was a soldier from his youth to the grave. But he knew by heart the soldier's art and he was great at it. John Huston Church was a tactician.



THE vitality of STRAC's motto—Ready for ACTION . . . any kind, any place, any time—depends upon the days and days of hard field training STRAC's units engage in. Behind the truly remarkable records run up by Army Missile Commands in practice shooting at Red Canyon are hours upon hours of painstaking drill. Training is always the Army's business and it is good to emphasize it in this Annual Meeting issue when thoughts will be centered on global strategy and new weapons and equipment. We are fortunate in having the Commanding General of the Continental Army Command—the person responsible for the training of today's Army—to enunciate a number of important but essentially simple training principles. These paragraphs are drawn from an address General Clarke delivered to the National Guard Association at Atlantic City on 29 September.

Here we present the thoughts on the importance of training, by an officer who has devoted most of his more than thirty years of service to the training of men for war.

The Training Task

GENERAL BRUCE C. CLARKE

NEW weapons and tactics complicate the job of training men but do not change the principles. For human nature hasn't changed a bit since Caesar trained his legions. When the Romans neglected to apply the principles, it was the *legion* that went out of date.

The basic principle of all training is so familiar that people still fail to appreciate how much it means: Men do in combat exactly what they have been in the *habit* of doing in training.

Replacing wrong habits with right habits is the training task. The right habits must be so deeply ingrained by constant practice that correct responses are instinctive under stress.

If soldiers are not in the habit of wearing helmets during training, they won't wear them in battle. And medical records show that head wounds will rise more than twenty per cent.

If soldiers are not in the habit of carrying their weapons during training, it won't be second nature to them in combat. And the soldier taken by surprise without a weapon in his hand rarely gets a second chance to change his habits!

The penalty for bad habits in passive measures of air defense warrants special mention. The day when the American soldier could be lax about dispersion, concealment and camouflage is past. Our potential enemies have missiles that reach out hundreds of miles. Air superiority no longer protects against speedy destruction of targets deep in the rear.

To stay alive anywhere in the battle area of the future, our units must make camouflage and concealment a habit now. This cannot be done by lectures and training films. It takes *practice!*

The vast increase in the range and lethality of modern weapons also emphasizes the importance of night training. In warfare of the future, we will do more and more things under the cover of darkness. We must acquire habits in training now that will enable us to move freely and fight effectively at night.

The big time-saver for building good habits is what I call the principle of *integrated* training. It means applying all we know to all we do all the time.

WHENEVER I see a unit practicing only one thing at a time, I am reminded of the history paper my son brought home one day. The grammar construction and spelling were terrible. "This is very poor English," I told him. "But Dad," he said, "I was only being tested in history!"

Opportunities to integrate tactical training exist whenever a unit moves, halts, bivouacs or does almost anything. Our people must be taught to recognize and exploit them. Above all we must not let our units practice bad habits.

Continuity in training is another short-cut principle that should not be neglected. A training schedule salt and peppered with fifty-minute periods of unrelated subjects slows learning. Scheduling blocks of time devoted to related sequences of subjects saves time.

A word of reminder about preparation. When training time is expended in prolonged periods, the advance effort devoted to preparation should be correspondingly increased. Meticulous planning and reconnaissance is absolutely essential to make sure that every valuable minute in the field will be expended profitably. Check lists for the purpose are a necessary command and staff tool—just as they are for supervising and testing the conduct of training.

Tests serve as a speedometer for gaging our training progress. So they must be rigorously exacting—or their results will give a false reading. "Easy does it" is a good slogan for selling some products, but it never produced a combat-ready unit!

Replacing the dry-run habit with the habit of doings things right the first time makes training time go farther. Dry runs produce lack of attention to initial instructions and lackadaisical effort in initial execution. In combat there are no dry runs. So learning to do things right the first time in training is a life-saving as well as a time-saving habit.

The problem of achieving training objectives in units that are considerably under TOE strength is familiar to us all. It has been my experience that it is far better to organize fully-manned units temporarily for training than to work with skeleton crews.

Reduced strengths in active personnel must be offset by more efficient utilization of *men* as well as time. Like all the others, this principle is so familiar that we often take its application too much for granted. An instance occurred to me one morning about six months after I took over a former command.

Every day an MP was saluting me when I left my quarters. One morning, a question entered my mind: "What else does he do?"

Checking up, I found that for twelve years, seven MPs, two drivers and two jeeps had been accomplishing the mission of saluting the commanding general as he left his quarters.

I wonder how many soldiers in units today are performing duties as pointless to combat-readiness? Look around your own headquarters with a quizzical eye and you may be able to suggest ways to fill up some of our under-strength rifle squads and gun crews.

Every soldier not properly used now is missing the training he needs for combat readiness on M-day!

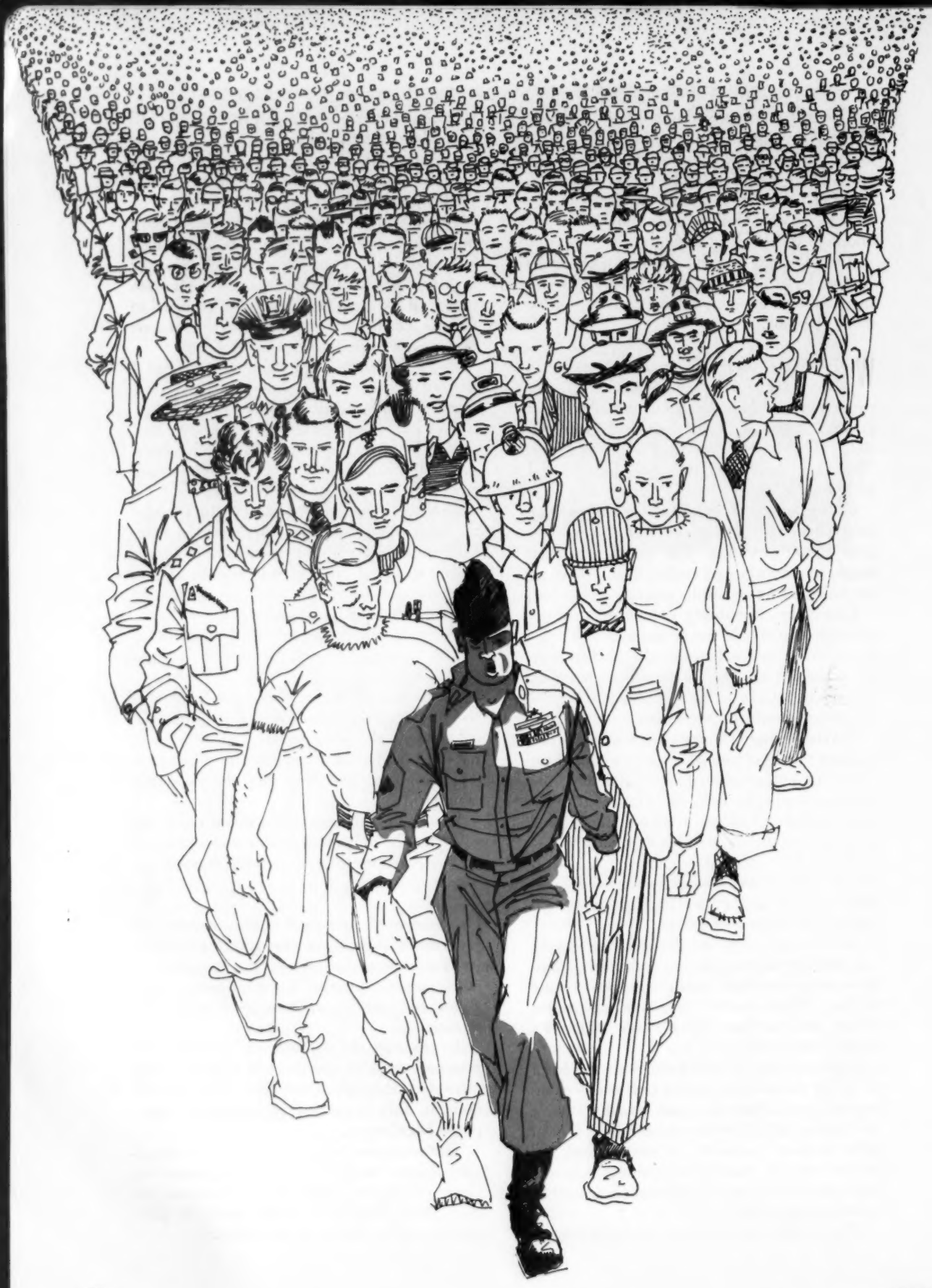
An increase in quality of our men is imperative. To offset the Army's reduction in numerical strength, the performance of every individual must be the subject of constant evaluation. The unfit and unwilling must be rigorously eliminated.

We cannot let weaklings weaken us at any echelon. The only men we can afford to retain are those who measure up in both potential and output.

IN summary, I propose that we approach our combat-readiness problems with the sense of wartime urgency appropriate to the gravity of our situation. I propose that we eliminate non-essentials in training and bear down hard on the essentials.

To undergo the rigorous self-discipline and personal sacrifices entailed will require strong motivation throughout the ranks. This motivation can only be sparked by enthusiastic, purposeful leadership.

The principles I have outlined are no magic formula—no sweatless solution. Implementing them will demand much of the American soldier. But I know that he has much to give, and the will to give it for our country!



Basic Training Isn't Simple

The big job always of the U. S. Army is the making of followers who will follow

COLONEL EBEN F. SWIFT

Illustrated by LT. COL. LACHLAN M. FIELD

HAVING completed the tenth book of the Chief of Staff's recommended reading list for the professional improvement of Army officers, I pause to reflect. The breadth and complexity of the problems brought out in these volumes are immense. However, all the authors are extremely convincing. Their knowledge, prestige, professional and scholastic standing eminently qualify them to explain the ramifications of these problems and their possible solutions. I don't doubt that reading every one of these books will improve an officer. I found some of them pretty tough sledding, and wouldn't recommend any for an afternoon of light reading. But the reading benefited me, if for no other reason than that it made me pause and reflect, and even (a painful process for me) think.

My thoughts, however, are not so much concerned with the problems brought out in these books, as with one problem *not* in them. While I don't question the validity of most of what I read, I do come up with this question: Are we becoming so preoccupied with reorganizing the Defense Department, allocating the budget, implementing the Command Management System, planning higher education for senior officers, determining the emphasis on all-out *versus* limited warfare, developing new weapons systems, and so on, that we are forgetting one of the most important problems of all? That problem is the annual training of thousands upon thousands of American young men in the very fundamentals, the ABCs, of the military profession. Although I intend to discuss the problem from the Army's viewpoint—the program of eight weeks of basic combat training—I realize that the Navy, the Air Force, and the Marines also have their troubles. You see, I learned from those books not to be parochial. However, since I am qualified by experience to examine the subject only as it applies to the Army, I will confine the discussion to our own basic training.

Colonel Eben F. Swift, *Infantry,* enlisted in 1933 and graduated from West Point in 1940. During World War II he led a battalion of the 27th Division in the Pacific and served on division and higher staffs there. Since then he has served on the EUCOM staff, as battalion commander in Germany, on Seventh Army's staff, with JUSMAG in Thailand, and is now at Fifth Army headquarters. An occasional contributor, Colonel Swift wrote the unforgettable "Division Objective" (October 1953) and "Leave the Troops Alone" (August 1957).

Magnitude of the problem

I doubt whether the magnitude of this problem is appreciated—in any of the armed services or out. In one Army training center alone during fiscal year 1958, more than 43,000 men took their first eight weeks of

basic training. This training center—not the largest by any means—is one of seven in CONUS where recruits are trained for the combat arms. Furthermore, not only the training centers have this mission. Almost every division in the U. S. must also train replacements for our active Army units both at home and overseas. At least one of our STRAC divisions has this mission this year as it did last year. In addition to the intrinsic difficulties of the training mission for such divisions, I think it is within the bounds of security to say that the effect on the operational readiness of these combat divisions is not good. However, that is another matter.

Those familiar with the replacement training system might say basic training is not a complicated affair. It is formulated on an assembly-line basis through which a few instructors can effectively train large numbers of recruits. The trainers do not have to be geniuses. Everything is planned and worked out for them. By employing the committee system they need teach only a limited number of subjects, and they can't go wrong if they follow the lesson plan. It doesn't take much leadership ability to teach a man to keep his rifle clean and to do RIGHT and LEFT FACE.

But doesn't it? From my experience and that of others I know that the conduct of basic training is not so simple as it seems. Let me illustrate.

Recently while reminiscing with an officer of considerable military experience and athletic ability, he related this incident: As a lieutenant during World War II he never realized the extent of physical uncoordination in so many of our young soldiers; it was brought forcibly to his attention one day while taking his men through an obstacle course armed with rifle and bayonet. One man just couldn't clear a waist-high log wall. My friend demonstrated without the rifle and the soldier made it after a time. Then the lieutenant demonstrated with the rifle. This time the man got halfway over the wall, collapsed and fell sprawling on the near side. His rifle flew into the air, and upon descent stuck in the ground about six inches from his head. Of course, when my friend told it the story was quite funny to both of us. But it is not so funny when you have the job of training thousands of physically uncoordinated men. You may argue that unless he is an infantryman, a soldier may never be required to scale a waist-high wall with a rifle in his hand in his military career. But if you can't teach him to climb a wall, how in hell are you going to train him to operate, for example, the guidance system of a Redstone missile?

Maybe lack of physical coordination does not necessarily indicate that a man lacks military aptitude, and maybe physical coordination is not essential in all military activities. However, many of our clean-cut American young men starting their military training are mentally uncoordinated as well; and mental coordination *is* essential in *all* military activities—from policing the area to operating a helicopter. Also, many of our American young men are not so clean-cut. Quite a few are those juvenile delinquents you read about, who carry spring-blade knives, swing bicycle chains at people, drag-drive in hotrods, rough up their high-school teachers, and hit the marijuana weed once in a while. They are a problem to the Army just as they are to their teachers, welfare agencies and, inevitably, the police.

We must train all types

However, this is only a part of the problem. The majority of recruits *are* clean-cut young men, somewhat soft physically, perhaps, with a slightly distorted, immature conception of military life. But on the whole, they are damned good military material, of the same breed as their fathers and grandfathers. They are amenable to sound military discipline when it is administered by competent leaders. Some are gifted, intellectually and/or physically; many have had the advantages of higher education and more wealthy homes. But all start out together at the reception center and all are assigned to the same training company, frequently the same platoon, possibly the same squad. The United States Army trains 'em all. It has the same problem that faces the civilian educator: instructing all up to a desired standard without bringing down the more advanced to a mediocre level. In fact, the Army's problem may be more difficult, since in most schools the intellectual level of the students conforms to that of the community, and tends to be more uniform than that of Army recruits, who come from all over. The problem is not new, and it is still with us.

The intelligent recruit is critical

Often the more intelligent recruit is more of a prob-

lem than the others, since he is more likely to be critical of the training and more bored with the elementary part of his instruction. Some interesting theories have been advanced toward solving this. One is to segregate recruits into groups according to IQ. Those in the higher intelligence bracket would get only four weeks of basic training instead of eight, but because of their keener aptitude they would advance to as high or higher a level of training than those in the lower brackets, who take eight weeks. While this theory may be valid scientifically, I don't believe the system a desirable one for the U. S. Army, because these young men should learn to live, work, and fight together from the beginning, regardless of their varied abilities. This is the very essence of democracy. If a young man is to advance militarily more rapidly than his contemporaries, he should earn his privileges under the same conditions as everyone else, regardless of his accomplishments before he enlisted. Also, if he has exceptional leadership ability, as well as high intelligence, it certainly will not harm him to train on an equal level with the type of man he will eventually lead. In most cases that will do him a hell of a lot of good.

At the United States Military Academy several hundred men of above-average intelligence take basic training every year. They are segregated according to academic ability in the classroom, but not in the training area. Although there are differences between cadet life and life at an Army training center, the instructional programs and the principles applied are identical. Also, I imagine the attitudes of cadets and recruits toward their training, particularly at the beginning, are more similar than many suppose.

Activity induced by confusion

While at West Point my personal reaction was: Why is all this stuff necessary? I remember thinking that all the hours I spent polishing brass, shining shoes, cleaning a rifle, making the bed just right, and policing the room, could certainly be better spent doing something else; for example, boning for an examination on differential or integral calculus. I am still not sure that the amount of time I spent was proportionally valuable, but while I have never applied differential or integral calculus during my military career, I still shine shoes and brass, and clean my room (very poorly, my wife tells me). I am convinced that these menial little tasks are as necessarily a part of basic military training as they ever were. Again, I think, I can explain by an illustration from West Point.

As a first classman, while on my way to a parade formation, I passed by the tent of a plebe who was in a storm—a West Point expression, usually modified by an unprintable adjective, meaning a state of useless activity induced by extreme confusion. He was already late for first call, which was his appointed time for being in ranks, and two yearlings were yelling orders at him with machine-gun rapidity. After knocking down sundry articles in his gyrations about the tent, at the direction of one of the yearlings, he started sweeping the floor. But he was so excited he wasn't even touching it with the broom. I finally chased the yearlings, told him he was accomplishing nothing that way, to finish dressing and get in ranks. I straightened out the worst of the shambles in preparation for the usual afternoon inspection and went to my place in the file closers. Later on, I thought to myself: *a little more than three years ago, I was the same as that plebe.* I used to be in just as big a storm, as excited, confused, and ineffectual as he was. Somehow, though, I weathered it, just as he probably would. At least I had learned something at West Point.

Now, if this is *all* I learned after almost four years at the Military Academy, I had wasted the taxpayers' money. The true value of what I had learned, or what I had experienced, did not become apparent to me until after World War II, when again I started a process of reflection, or "woolgathering" as my Dad used to call it. It is a far cry from the situation I have described to one on the battlefield. Yet there are certain similarities.

Consider a battalion commander in a combat situation. To him, the only thing clear about it is that things are tough; his S2 gives him ominous, conflicting reports; his S3 recommends counterattack plan A, but communications with the reserve company are out, one company commander requests permission to withdraw because the enemy's heavy mortars have zeroed in on him, another complains that he is being fired on by the friendly unit on the right, his tank commander reports that tanks are almost out of gas and need maintenance, his S4 says 81 ammo is getting low, and his artillery liaison officer asks where to put the next concentration. He may react much in the same way that plebe did—unless during training he has been subjected to some type of pressure, however artificial, which he has been required to overcome. He will be effectual if he has learned that if he does just a few simple things correctly, methodically, one at a time, everything will get done eventually, and usually in time. He will be reasonably effectual if he has learned only that sometimes he can just tough it out without doing anything, except so long as he does not leave his subordinates to work out the problem for themselves. If he can refrain from grabbing that broom and waving it in the air things usually turn out all right.

My experience convinced me that the basic training I took at West Point was necessary, that the apparently useless activities had a purpose, and that purpose did prove valuable in my military career. I am further convinced that a complete basic and advanced training cycle, with two years of active duty, would be equally purposeful and valuable to any young man, regardless of his economic or intellectual level. But I realize that it is one thing to convince myself, with a lifetime spent in the Army, or a West Point cadet, who must have had some motivation for military life or he would not be there; it is an entirely different matter to convince a recruit of this fact. Yet that is what we must do at our training centers, and we must make the maximum effort to do it.

"Useless" activities have a purpose

It is possible that we are placing too much emphasis on trying to make the soldier *like* military training and Army life. I volunteered for airborne training because it gave me a sense of accomplishment to be qualified in one more skill which the Army needed or may need some day to help accomplish its mission. My reply to a senior airborne officer who asked me if I liked jumping from an airplane was: "Am I *supposed* to like it?" Whether I liked it or not was beside the point. Most American young men have the common sense to know that it is worth considerable personal inconvenience and discomfort to take training that is both necessary for the security of their country and of potential personal value in later life. Our basic training should be of such a high standard that it does, in fact, accomplish this purpose. If it does, the soldier will find that he liked it better than he thought he did, or at least he will have liked completing it successfully.

I point this out to show that the basic training of all these types of young men entering military service is no simple, trivial task, especially for those people of the U. S. Army who must do it. So far, we have considered the problem from the standpoint of the trainee. Let us now consider it from the standpoint of the trainer.

The little things count

Recently I visited a training center where I observed training and talked to the members of the staff and to its acting commanding general, whom I worked for at one time, and whose opinion I greatly respect. I must admit most of what I will relate came from him across his own bar, rather than from my own observations. Nonetheless it is sound. Substantially, this is what he said:

"I am doing exactly what I was doing twenty years ago: checking the little things. I believe if you can take care of the little things, the big ones will take care of themselves later. I still check our people's haircuts, whether they wear their insignia correctly, their appearance and bearing before a group of trainees. If we are going to make soldiers out of these youngsters we must show them by example how soldiers look and act themselves; then we will have the battle half won at the start. I know that as a general officer I shouldn't have to do these things, but if I don't nobody else will. The Army seems to have forgotten how important is the soldier's first impression of it. I made the laundry starch one set of fatigue uniforms for each new man in order that they wouldn't look too much like a bunch of recruits when they first started training, and I found a supply sergeant who was having the men put that set in the bottom of the barracks bag with all other paraphernalia on top of it. I found one sergeant at close-order drill giving TO THE REAR MARCH several times in a row to a group of trainees, who were obviously completely disorganized, without making a single correction. He didn't know this was wrong. He thought the group was doing fine.

"Our people here are trying. We have good noncommissioned officers with considerable experience, but some of them had experience of the wrong kind. Our junior officers, our lieutenants, should be under good strong company commanders, but because field-grade officers are short the lieutenants *are* the company commanders. They don't have the experience necessary for the job and they are not getting the guidance they should have. The captains, who are battalion commanders, are in the same boat. Our few field-grade officers are so occupied with various complex problems of command management, construction projects, nuclear warfare study, and so forth, that they don't have time to supervise the way they should. But I am gradually convincing them all that their primary job is to make soldiers of these youngsters.

"Anything wrong here is not due to lack of effort. We have a housing shortage which the present construction program will alleviate, but it is with us now. Many of our officers and noncommissioned officers travel thirty or forty miles to and from work. They must get up about four-thirty in the morning and don't get home until eight-thirty or nine at night. I read about this situation when I was overseas, but didn't believe it until I got here. How many civilian jobs are there with hours like that?"

Common sense in getting things done

I know of no better way to summarize the situation

at this training center than to repeat this general officer's comments. If I have given the impression that he is a somewhat orthodox old gentleman, who goes around doing things and cannot see the forest for the trees, I have given an extremely false impression, as his outstanding combat record and professional reputation would show. I would like further to point this out by mentioning some of his actions at this training center.

At the guardhouse one day, learning that a large portion of the prisoners were first offenders, he ordered the provost marshal to return them to their units. The provost marshal protested, saying that he was responsible if they took off. The general didn't argue the point; the prisoners were released. He preferred that they be made soldiers rather than prisoners, unless it was conclusively proved to him that that was impossible.

Although he was told it was not done in the past for various reasons, he required every bolo on the rifle range to refire. Although it was not the policy before, he required every recruit who failed the proficiency tests to be retrained until he passed.

Obvious solutions to simple problems? Perhaps. But orthodox? No. The orthodox solutions would have been to follow the old policies. This would have been safe and it may have been preferable if the results of the old policies were better. I think the results of the old policy were not better, and I am in a pretty good position to know. This, I believe, is seeing both the trees *and* the forest.

The general has no extraordinary qualifications for his position at this training center, such as a Ph.D. in psychology. He is not noted for his literary ability or his achievements in the scientific world. But he does have an instinctive understanding of human nature, especially in soldiers, and a generous amount of common sense which enables him to get things done and which eminently qualifies him for this job. Unfortunately, there are all too few like him in our training centers—or in the Army, for that matter.

Why? I suppose many of us—including me—must share the responsibility for the personnel situation at the training centers. Nowadays command jobs are so scarce that when I get mine, I want it in an old established outfit with a lot of esprit and tradition. I want it up to strength, with a competent staff, with capable, experienced officer and noncommissioned leaders, and sharp, alert, thoroughly trained soldiers. I would prefer to have it overseas, ready to fight; furthermore, I would want it recognized as the crack outfit that I intend it to be. You don't have that at the training centers, and this brings me to the point of this entire article.

A high standard must be required

Unless this job is done correctly at our training centers, in the U. S. Army there will be no outfits like this one I want. After reading the books recommended by the Chief of Staff, no one is more impressed than I by the multitude of complex problems and the demands made upon the Army's resources. But a high standard of basic training must be required, regardless. It will not make a damned bit of difference how the Defense Department is organized if we can't train enough youngsters to climb walls with rifle and bayonet. We can have —and we should have—the most marvelous weapons system in the world, but unless we can teach the future operators RIGHT and LEFT FACE, their weapons will be ineffective, because undisciplined, uncoordinated operators will sure as hell push the wrong buttons. Our basic training system is sound, and in the past has turned out some fine products to prove its value. But it should not be set in concrete, and may be improved if some of the brains of the Army, now engaged in other tasks, are devoted to revising it. More leaders of the type of my general officer friend are needed at our training centers. Once assigned, they should not believe that they are merely required to go through the same old rat race every eight weeks, in an undermanned outfit, out in the boondocks, without adequate housing or other facilities, foregoing the professional experience and pride that comes with being in an established TOE unit, and forgotten by most people, unless some alleged mistreatment of trainees occurs. The Army must devote more of its resources, overstrained as they may be, toward supporting our training centers. Certainly the training centers must economize with the resources they are allocated, just as the rest of the Army must, but economy can go just so far before it cuts into such intangibles as morale and the ability to accomplish a mission. Believe me, the people of our training centers know what it is to economize, and they will utilize those resources to gain the maximum effect. Most essential of all, however, they must realize that their job is tremendously important—so important in fact, that if not done properly, the U. S. Army will cease to exist as a fighting force. They will realize it if is so recognized throughout our Army.

This is a "dummy" Redstone developed for training in the field. It looks like the real thing and its black box, housed in the truck, snaps, pops and crackles like the real thing

The military handymen at the Naval Training Device Center are wizard

CREATORS OF SIMULATORS

COLONEL K. H. HUNTER

THE finest weapon ever devised is only as good as the soldier who mans it. This is the principle underlying all our training. In some training, the cost of using real equipment during instruction is almost prohibitive; for example, it is impracticable to fire enough guided missiles to insure adequate training. You can't have enough field exercises and maneuvers to train all potential combat leaders in tactics. Nor can you explode tactical nuclear weapons to train men in radiological survey. Training devices are the essential substitutes for the real thing.

Synthetic training devices and simulators enable combat skills to be practiced over and over again, in order to maintain crew and leader proficiency. They make possible training in tactical decision-making. They can be used when it would be dangerous to use the real thing.

Over the past several years, the Army has developed and produced a great many effective and valuable training aids, from target devices and gunfire flash-and-sound imitators to very complex electronic missile and operations simulators.

One of the newest devices which offers tremendous potential is the Redstone Trainer, developed as the result of Army participation in the U. S. Naval Training Device Center (USNTDC) at Port Washington on Long Island, under the direction of U. S. Army Continental Army Command (CONARC). Specifications came from the Army Ballistic Missile Agency (ABMA) at Huntsville, Alabama, which sought a synthetic device that deployed units in the field could use to practice firings and evaluate the ability of crews to prepare and fire the Redstone successfully.

The story of the development of this Redstone device is unique—a classic example of interservice cooperation.

NTDC, established in 1941, has the job of improving the effectiveness of the Navy's training program through research, development, and production of training devices. Since then it has attained an unequalled competence and know-how and has established broad contacts with civilian firms having special facilities.

In March 1950, the Secretaries of the Army and Navy agreed that the Army would work with NTDC beginning in Fiscal Year 1952. Army participation was predicated upon its obvious need for some developmental agency specializing in training rather than in engineering problems. NTDC

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answers this need. The Army's participation has resulted in a reduction in its overhead costs, and in improved interservice coordination.

The Naval Training Device Center is staffed by 580 civilians and forty officers, eleven of whom are from CONARC's G3 Section and are identified as Army Participation Group (NTDC). In effect, projects lose their service identity. For example, the project officer for development of the Redstone Trainer was a Navy commander.

Approved plans for most devices are turned over to contractors who are able to turn out synthetic devices and simulators. After a prototype is produced, it is evaluated by appropriate boards, schools and user agencies. Only then is interim procurement initiated through NTDC by the Deputy Chief of Staff for Military Operations (DCSOPS).

The Redstone Trainer

Returning to the Redstone device, initial tests were completed at ABMA, and user tests by the U. S. Army Artillery Board, an agency of CONARC, began in March 1958.

To describe the Redstone analyzer simply, it is a dummy missile and an electrical simulator. The dummy is full-scale, identical internally and externally to a real Redstone. It can even be fueled. The components are all there, but in dummy or synthetic form; they must be checked, adjusted, repaired and replaced like originals. Their performance inputs and outputs read the same as if they were in the real missile. The dummy's "black box" snaps, pops and crackles like the real one. Dummies are actuated to respond by means of the trainer.

This device is as simple a piece of equipment as it is possible to design, stressing straight electrical circuits and avoiding complex electronic and computing equipment. It even rides in its own truck. It can synthetically actuate the reading panels in a fire-control truck, and simultaneously actuate the dummy components in the missile.

One excellent feature is that the device can create more than a hundred malfunctions in the system which the crew must recognize, locate and correct. What they do, and how and when they do it, is automatically recorded for post-exercise critique.

The first Redstone Trainer was delivered in October 1957, less than a year from date of contract. It reached the new tactical unit ahead of the first real missile—an ideal condition. It also has the distinction of being the first complete missile simulator of its type.

Radiation Survey Training Set

The Radiation Survey Training Set is an example of a trainer developed for use when it is impractical or impossible to use real equipment.

It is vital that soldiers be trained to recognize radioactive fallout resulting from a nuclear burst. Obviously, it is impossible to provide large-scale training because we cannot afford to explode a real nuclear weapon.

This device consists of a radio transmitter (actuated at ground zero of the synthetic nuclear burst) and a set of radio receivers identical in external appearance, size and function to the

A 90mm gunfire simulator mounted on tube of tank gun. The Scotchlite pasted on tank's turret is used to reflect back the beam of the tank-versus-tank device

RADIAC (radioactivity detection, identification and computation) set.

The receiver is energized by radio waves from the transmitter and displays this transmission in the same terms as the real set—in roentgens per hour. As the operator nears the transmitter, his readings become correspondingly higher, as would be the case with real equipment.

This device was used successfully in the recent Exercise Indian River. It is another example of a training device reaching tactical units long before operational equipment.

Another device is a simulator for use during field exercises and maneuvers to acquaint troops with the appearance of a nuclear burst, without danger from radiation or explosion.

Aids to first aid

A war-wound moulage kit, devised for the Army, contains twenty full-size models of wounded parts of the anatomy, showing bone structure and flesh. Some can be made to "bleed." This device imparts considerable realism to training or to testing proficiency in correct identification of typical wounds and application of proper first-aid treatment. These devices are flesh-like and can be easily attached at the proper place on anyone's body. Some of them illustrate a wound of the abdominal wall with protruding intestines, an amputation, the face in shock, frostbitten feet, an open fracture of the lower leg, or a wound of the lower jaw including partial loss of bone.

The devices we have discussed prove that for certain purposes, simulators and synthetic contrivances have advantages over real equipment. They provide a means of training otherwise not available because of costs, danger, and administrative limitations.

In the case of the Redstone device, crew drills can be repeated—training which the use of a real missile will not permit. In the case of the Radiation Survey Training Set, instruction in radiological survey can be accomplished only by using this device.

Commanders may now conduct objective unit evaluation with the aid of these training devices. Proficiency of their units and effectiveness of their current training programs are by-products of such usage. Subjective errors in evaluation are reduced or eliminated.

The money saved through using training devices is immeasurable since the costs of training by conventional means are so high as to be prohibitive. Only one illustration is needed to indicate the savings possible: these devices allow repeated realistic dry runs without deteriorating real equipment. For example, experience at Redstone Arsenal has shown that a missile wears out after about three months' use in training, at a cost of more than $1.387 million. By contrast, the cost of a Redstone Trainer is less than half that of a missile ($600,000) and has a life expectancy of five years.

A penny saved here . . .

Comparable costs of the Nike devices are even more difficult to analyze, but the costs of actual operations of fly-over and missile are astronomical compared to those of one simulator ($85,000) which provides around-the-clock training. More important, this training does not have to consider problems of air space, safety, and weather, along with the other inherent administrative difficulties.

It is not possible, of course, to calculate the savings resulting from the use of the Radiation Survey Set.

Savings are not limited merely to "complicated" devices. For example, oxygen-acetylene simulators for gunfire flash-and-noise now being developed will open new doors to training economy. A blank round for the M60 machine gun costs about five and one-half cents, while the simulator's "round" costs six thousandths of a cent!

Another device that adds realism to field problems and exercises, when we cannot use real weapons, is the 90mm tank-gun simulator. This uses essentially the same principles as the small-arms simulator; it creates flash-and-sound, with a bigger bang for the buck. For about one cent, it produces a flash-and-sound similar to that of a 90mm blank round that costs seven dollars. The economies to be effected during periods of austerity, or for pure savings any time, become apparent.

. . . can be used elsewhere

Devices such as these save considerable time. If—and it's a big *If*—the need for a training device is considered when the military characteristics for a new weapon are approved, then the simulator can be produced and issued to using units before or during the introduction of the real weapon. This saves months in turning out combat-trained units.

Other savings are indicated in Redstone Arsenal's experience, when it was found that because of deterioration in the real Redstone from continued use in training (it took seven hours to prepare for one hour's training), there was no assurance that unplanned malfunctions would arise.

The safety element in training must also be considered. Training devices enable the Army to practice procedures and to simulate firing when it would be unsafe to use real weapons. A very fine H-37 Mojave helicopter flight simulator now under development portrays the full environment to the pilot. This will permit checkout of pilots without risk to men or machines.

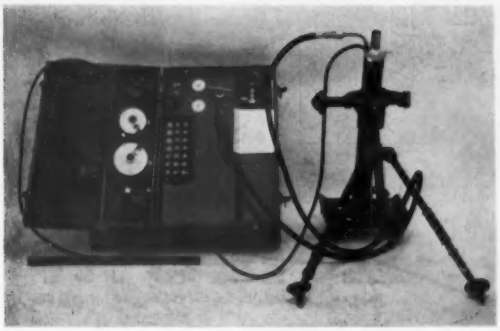
Another serious difficulty which training devices can overcome is tighter security of classified materials. This may appear to be an animal in a strange habitat, but these trainers and simulators contain no classified components, as do the real things, and therefore security need not concern us during training. This provides a means of training our allies without the possibility of revealing classified materials to unauthorized persons.

Anticipating the increased need for missile training, plans have been approved for work on practically all missiles in the Army's arsenal. Other important devices are a countermortar simulator, a tank-gunnery trainer, small-arms targets and target systems, and general training aids. Nearly a hundred Army projects are under way at NTDC.

However, we have merely scratched the surface. There are many areas in which training devices must be developed to meet both current and future needs. To mention a few, leadership trainers in which the battle is brought into the classroom, trainers for tank-platoon leaders, and devices for artillery with which service of the piece can be practiced.

We must have R&D in training

As a general awareness of the work of the Army Participation Group at NTDC grows, most likely many new areas will open for simulators and synthetic trainers. The mechanics of producing such devices follow an orderly pattern, but of first consideration is the early determination of their need. This is a big problem since the need must be quickly recognized and the requisition forwarded fast enough to provide the device before issuing the real thing.



Behind the success of USNTDC is the teamwork of Army and Navy officers and civilian engineers and designers—all symbolized here as they watch the firing of a sub-caliber device for the 60mm mortar, details of which are shown above

Here is where the whole Army has a place in the research and development picture. At the inception of development in new operational tactics and techniques, new organizations, and new qualitative matériel requirements, the agencies responsible for training must be alert to the need for these devices.

Another difficulty lies in overcoming resistance to the use of simulators instead of real equipment. When we can clearly prove that such simulators save time, money, and even lives, our problem will be solved.

Synthetic devices make it possible to perform difficult or dangerous tasks under close supervision. Mistakes in performance can be detected on the spot and eliminated by critique and corrective repetition. Combat missions can be conducted under controlled conditions regardless of weather or availability of real equipment. These devices save the costs of operating real tanks, guns, aircraft and missiles; also, operational equipment becomes available for deployment to where it is needed. Most important, these devices save lives that might otherwise be lost in ever-possible training accidents.

The place of simulators

Of course, training with simulators can never completely replace operational training. However, it goes a long way toward substituting for it by preparing forces in the field to receive new equipment, and by repeating combat operations again and again it maintains proficiency at the highest possible level.

The complexities of modern warfare and of the weapons that have been introduced during recent years have made us hardware-minded. But experience teaches us that the best equipped army does not always win the battle. Weapons, then, are not the full answer. We must have soldiers who have been thoroughly trained to man them. The combination can be provided only through advanced planning and progressive research.

This training, planning and research cannot be done by the hardware designers and engineers. Just as engineering is a specialty, so is research and development in *training*. Hence, there is a continued need for separate and proportionate efforts in training, planning and research to parallel our advances in hardware.

This case history of guerrilla action demonstrates that violation of sound principles of irregular warfare inevitably brings defeat and disaster

The Bridges at Kotli

MASTER SERGEANT RUSSELL K. HAIGHT

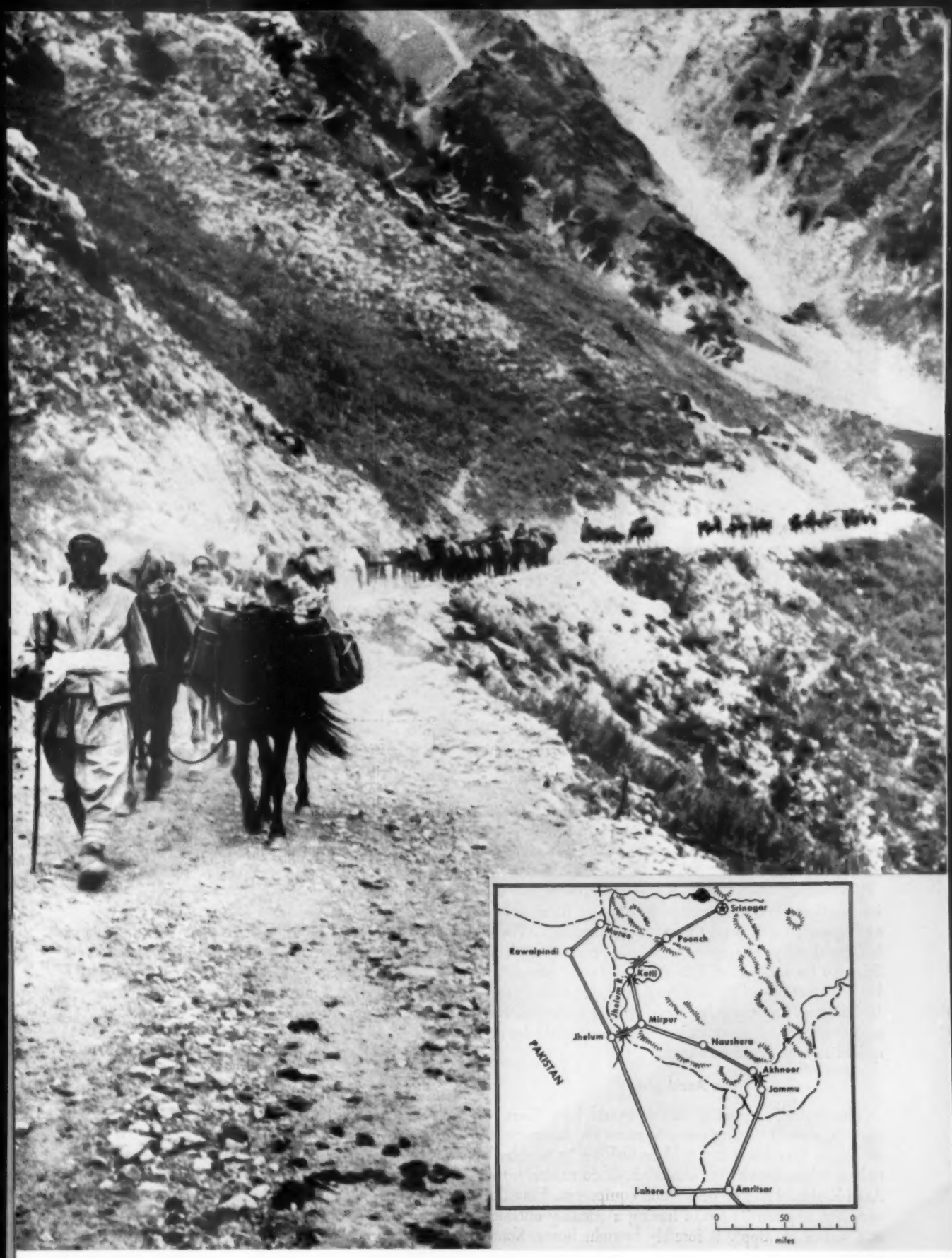
An Azad guerrilla patrols a road near the Jhelum River. Opposite page: An Indian Army pack train winds through the mountains of Kashmir. Inset: map of the action

THE existence of Special Forces units in the U. S. Army, along with escape and evasion training, indicates an aroused interest in combat by guerrillas—or irregulars. Valuable lessons may be learned through study of a small war where one side adhered to guerrilla tactics while the other fought in conventional fashion. Such a war was the one fought in Kashmir during 1947-48.

When the two new nations of Pakistan and India were created in 1947, open warfare broke out in the principality of Kashmir over which nation it should merge with. India sent in regular troops while Pakistan lent clandestine support to those Kashmiri who had formed a provisional government which they called Azad (Free) Kashmir.

With no trained soldiers or modern weapons, and no time in which to raise either, the Azad forces adhered almost exclusively to guerrilla operations. The Indian forces, ill equipped by our standards but for the time and place well trained and armed, fought in strictly conventional style.

The first sizable engagement between the Azad guerrillas and the Indian regulars was at Kotli, a town of some five thousand astride the only all-weather road in the country, halfway between the capital city of Srinagar (on the Jhelum River, 180 miles north of Lahore, in an altitude of 5,250 feet) and the India border. Azad strategy was simple but sound. The Indians held all the important towns and cities, and were busily engaged in garrisoning little villages with small units, each day encroaching deeper into the outlying countryside. Although their air force had mustered a handful of DC-3 aircraft that brought reinforcements to Srinagar on one occasion, there were not enough for an airlift in the sense that we use the term for the


Srinagar
Mirpur
Poonch
Rawalpindi
Kotli
Jhelum
Jhelum
Mirpur
Jhelum
Naushera
PAKISTAN
Akhnoor
Jammu
Lahore
Amritsar
0
50
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miles

Village workmen repairing the weapons used by the rebels. These were a mixed lot of firearms gathered from the far corners of the world. An assured source of weapons and ammunition is essential to guerrillas

Berlin operation. All supplies for the occupying forces had to come over the Amritsar-Srinagar road that passed through Kotli. The Azad Kashmiri therefore planned to render the road impassable and starve out the enemy.

The sketch shows why Kotli was chosen for the initial effort. The road crosses the Jhelum River below and above Kotli, over timber trestle bridges. These bridges destroyed, supplies could not reach Poonch or Srinagar for some time. The Pakistan border was nearby, a perfect haven if something went seriously wrong. In Pakistan, any wounded could receive attention, and a new supply of ammunition and stores could be acquired to replace expenditures.

The Azad plan

The logical method of attack would have been to send in a small raiding party to mine the bridge with devices so timed that it would be well on its way back to base when the charges exploded. Unfortunately, the Azad Kashmiri had no demolition equipment. Here the necessity of guerrilla forces having a friendly outsider as a source of supply is forcibly brought home. Some Lee-Enfield rifles, a few Lewis machine guns, and a mortar or two, with little ammunition for them, was all that was forthcoming. The small amount of outside aid was in a large part responsible for the difficulties Azad Kashmir later encountered.

Since the bridges could not be blown, it was decided they must be burned. This meant that the attacking force had to immobilize the Kotli garrison (a reinforced rifle company) long enough for the flames to take effect. Here is an example of circumstances forcing irregulars to do the very thing they must avoid at all costs.

The Azad command came up with a plan it hoped would offset the dangers involved. A third force, Pathan tribesmen from the North West Frontier, was active in Kashmir. The Pathans agreed to join the Azad forces in raids against the enemy, taking loot as their pay. It was felt that their presence was a mixed blessing. The Pathans readily agreed to assault Kotli while the Azad forces did what they could to construct roadblocks and destroy the bridges. The element of surprise might well allow the Pathans to overwhelm the defenders by

weight of numbers. If the casualty rate became excessive—well, there were other tribes who would volunteer.

The first attack

In September 1947, Kotli was attacked by about eight hundred men, some five hundred of them Pathans. Kashmiri demolition teams—the term is used loosely—drenched the bridges with kerosene and fired them, while other groups felled trees across the road at strategic points and dug up the roadbed as thoroughly as time permitted. The Pathans moved swiftly through the enemy's unwary outpost line, quietly knifing the unsuspecting sentries. They were well into the town before their presence was discovered. However, the garrison commander knew his business. At every intersection he had placed Vickers machine guns behind sandbagged strongpoints, and their interlocking fires took a heavy toll. Yet the defense, though gallantly conducted, was in vain. The Pathans, despite the loss of half their number, drove the garrison troops out of their prepared positions. The Kashmiri, who had been waiting along the probable line of retreat for just such an opportunity, hit the flank of the disorganized Hindus and allowed none to escape.

Those Pathans still on their feet quickly gathered all the loot they could carry and melted into the hills. The bridges were now blackened ruins, and the road, torn up in a dozen places, effectively shut off motor traffic until extensive, time-consuming repairs could be made.

The effort had been successful, and could be called complete except for another factor that forced the guerrillas to violate another rule. Remember that this was a religious war, with no discrimination between fighter and noncombatant. The population of Kotli was almost entirely Moslem and might be massacred when a new garrison of Hindus arrived, as it would. It had happened before. A friendly populace was essential to the guerrillas, so to leave the inhabitants of Kotli to their fate would irrevocably alienate the very people on whom the Azad government depended. Kotli must be held against probable enemy counterattack until the inhabitants could be evacuated.

It was not learned until months later, but when the

An essential principle of guerrilla action is to get along with the natives. This seems to be the case here at a roadblock established by the rebel forces. But later the natives lost hope and turned against the rebellion

Pathans first attacked the town, a radio message requesting help had gotten through to the parent unit of the defenders, an Indian brigade stationed about thirty miles away. A motorized column of Sikh infantry that included three armored cars was immediately dispatched to Kotli, reaching the first Azad roadblock while the townsfolk were still trying to collect their belongings before evacuating.

Cost of the action

The Azad forces were a mixed bag. A Pakistan Army deserter who had volunteered with Azad Kashmir, bringing along his Lee-Enfield, fought alongside a Kashmiri farmer armed with a single-shot Martini-Henry, liberated from who knows where. Many Kashmiri were armed only with swords or spears. Those with firearms had very little ammunition, and there was no army supply point. Still, the Azad forces held on, retreating from one roadblock to another as the Sikhs pounded them with mortar and machine-gun fire, and the armored cars moved slowly in the wake of pioneer teams that cleared away trees blocking the road. After dark, the remnants of the Kashmiri force split into small groups, some crossing the border into Pakistan, others making their way over the mountains to the Azad base near Muree.

The balance sheet of the Kotli battle would have on its credit side two bridges destroyed, a vital supply line cut and made unusable for several weeks, a civilian populace cheered by the sight of an offensive by their fighting forces, and a large number of casualties (estimates ran from two hundred to four hundred) inflicted on the enemy. The debit column would list the loss of much equipment. The machine guns captured in the initial assault had to be abandoned, and a large amount of hard-to-get ammunition had been expended. Casualties were excessively heavy, but remember that these people hold human life rather lightly, and there were far more men willing to fight than Azad Kashmir had weapons to provide. Whether or not the price of the action was too high, the Azad leaders counted the battle a victory, at the same time determining not to repeat their mistakes. There would not always be Pathans to substitute for firepower.

The thin trickle of supplies from Pakistan began to include demolition matériel, mostly construction dynamite, with a goodly number of blasting caps. Small arsenals were set up to manufacture grenades from cigarette tins, dynamite, and assorted scrap metal. Weapons were given makeshift repairs, and small, crude assembly lines for reloading ammunition set up.

Effects of weapons

In the beginning, the Azad forces did not anticipate a long war, hoping to hold as much territory from India as possible and to do as much damage as they could until Pakistan actively entered the conflict on their side. When it became obvious that Pakistan either could not or would not, the Azad authorities pinned their hopes on two possibilities: either they could keep thousands of Indian troops pinned down in policing Kashmir, thereby causing an unsupportable drain on India's limited financial resources, and thus forcing some sort of settlement; or they could continue to make the largest portion of Kashmir untenable for Indian troops until the United Nations intervened to conduct a plebiscite they were confident of winning. To these ends, they continued their policy of raiding with commendable success, but a success that became almost ruinous.

Enemy patrolling declined in the face of constant ambush. The small garrisons in the villages were withdrawn. Those in the larger towns were forced to go on half rations when convoy after convoy failed to arrive, either through guerrilla attack or because another section of road was made impassable or a rebuilt bridge was destroyed. There is no doubt that India began to feel the strain.

On the surface, it would appear that Azad Kashmir was doing well, but such was not the case. Raiding became ever more difficult. Armed only with rifles and odd light machine guns, the guerrillas were no match for the heavily guarded convoy that included armored cars. Heavier weapons would have been useful but for their weight. In general, any weapon that cannot be carried by one man at a dead run is too heavy for guerrilla use. Since most of the fighting was at close quarters, they needed grenades and a light self-loading weapon like our carbine. Submachine guns consumed far too much ammunition to be useful. Rocket launchers would have been ideal substitutes for mortars or recoilless rifles for reducing strongpoints and for ambushing convoys protected by armored cars.

Guerillas need successes

With each new raid, more volunteers poured into Azad headquarters. These newcomers had to be fed, and in many cases, clothed. Most of them were farmers, still eating rice but no longer growing it. As the Azad forces grew, larger levies of food were demanded from friendly farmers whose stocks dwindled alarmingly. When faced with a choice between country and one's family going hungry, patriotism invariably goes down the drain. The populace, once enthusiastic in the Azad cause, became at first apathetic, then resentful, and finally in some extreme cases actively cooperated with the Indian forces. Ambushes, which had been unusually successful, now became extremely hazardous, the trappers themselves being surprised. Azad bases in the hills, once secure, now moved frequently lest informers lead Indian troops to them. The number of daylight sweeps by the Indian air force increased, making daytime movement difficult. Morale deteriorated, for even guerrillas, no matter how patriotic, need the hope of final victory kept burning by some smaller successes, and these became few. Desertions increased, and finding loot hard to come by, the Pathans turned to raiding farms, further alienating the populace.

This International News Photo, released on 3 February 1948, carried this caption:

"FIRST WAR PICTURES OUT OF KASHMIR

"KOTLI, INDIA—This is one of the first pictures to come out of Kashmir where Moslem and Hindu fanatics are fighting an undeclared war. The crisis is now before the United Nations. The photos were brought out by Russell King Haight, 26-year-old ex-GI of Denver who fought as a general with the Moslem forces. Among the troops of his international brigade were these wild Pathan tribesmen. They were fierce fighters but completely without discipline. Their rifles are lever action single-shot affairs made in small foundries in the Khyber Pass. Swords ('Tulwars') are razor sharp."

Master Sergeant Haight, *now on duty at La-Salle Military Academy, Oakdale, N. Y., tells us that between enlistments in the U. S. Army, he was a captain in the Azad forces and commanded the demolition party at Kotli. He later commanded a brigade of dragoons, but cautions that "brigade referred to numbers, not organic organization or equipment."*

Against the advice of military leaders, the Azad government ordered the formation of an army along conventional lines. This army, for which the bulk of the weapons and equipment received from Pakistan was to be reserved, would attack along the road from Poonch to Akhnoor, destroy the vital bridge there, and hold the bridgehead against all comers. Since the road closely paralleled the Pakistan border, a constant resupply of ammunition was expected from that source. Further, reinforcements and casualty replacements could travel through Pakistan unmolested by Indian troops or aircraft, and cross the border at exactly where they were needed.

Though it was an admirable plan, and enjoyed initial success, it was doomed to fail. After months of guerrilla operations, the troops had difficulty in adapting themselves to more conventional combat. The very qualities that make a good guerrilla—independence, the ability to think for himself, the instinct of the hunted—all were missing in the organized units. Brave though he was, the Kashmiri could not make the

transition. Pakistan was unable to keep a large army supplied, and in the face of vigorous Indian protests in the United Nations, had to deny Kashmiri troops passage through, or refuge within, her boundaries.

The second assault

Kotli was taken a second time. Mirpur fell, as did smaller towns in the southward march of the Kashmiri force, now grown to two brigades. Yet each successive action depleted the Azad resources in both men and matériel. Wisely, the Indian forces put up only token resistance, preferring to mass at Naushera, about halfway between the advancing Kashmiri and the Akhnoor bridge.

In the three-day battle that followed, Azad Kashmir saws its hopes completely dashed. While a half dozen Spitfires cannot be described as "wave after wave of strafing aircraft," their appearance demoralized the Pathans. Unsurpassed at hand-to-hand combat, and superior marksmen, anything more complicated than a two-wheeled cart was beyond their resistance. Forgoing the prospect of unlimited booty, they simply withdrew and, pausing to loot undefended rear areas, went grumbling back to the North West Frontier Territory, leaving the Azad forces at half strength. A single battery of 3.7-inch howitzers may not sound like massed artillery, but when all you have to counter it is a 2-inch mortar and twenty rounds of HE, it becomes formidable. Six World War I Rolls-Royce armored cars, each mounting a Vickers .303 machine gun, would be laughable to an American infantry company, but to men armed mostly with single-shot rifles, they were invincible. The Azad troops had courage in plenty. The fact that the fight lasted three days proves that, but the result was inevitable. Mustering less than four companies, the Kashmiri broke off the action and withdrew.

Lessons for us

What lessons can we learn from this action? The Azad Kashmir forces made mistakes, not a few of which were induced by factors over which they had no control. When adhering to rules for successfully waging irregular warfare, they did well. The early phase of the Kotli battle was a classic example of a well-conducted attack by irregulars. The ambushes and hit-and-run raids were invariably effective. Controlling three-fourths of the country, they kept the Indian forces tied to cities and towns. Countermeasures against them constituted a severe drain on the resources of the young republic of India. Several factors contributed to the Azad defeat (stalemate is not victory). They were handicapped by inadequate weapons, with no friendly force operating in the field as an active participant, and an originally friendly populace either turned against them and cooperated with the enemy or, by its apathy, denied them vital support in the way of food.

In some future campaign where partisans are on our side, we must be sure we do not commit such errors. We must give irregulars sufficient arms, including semiautomatic weapons, rocket launchers, grenades, and explosives, that can be carried by one man. We must coordinate our own and their efforts by close liaison with guerrilla leaders.

In the unhappy event that we must operate in an unfriendly area, we must expect guerrilla activity against us. When that occurs, we must never allow mass reprisals. The Germans found that indiscriminate slaughter of noncombatants only drives a populace, already hostile, into active support of the guerrillas and back into the arms of the enslaving power. Patience is the answer.

We gain nothing by sending heavily armed forces after a will-o'-the-wisp. To do so only increases the casualty rate without damaging the insurgents. We must stick to terrain unsuitable for guerrilla operations even if it means building roads where none exist. We must maintain strongpoints, adequately manned and constantly alert, where they protect key installations like bridges and power plants.

Guerrillas must be supported

If a nonbelligerent supplies the irregulars, all the vigor of our diplomacy must be brought against the offender. If he is a belligerent, we must, by controlling the air, prevent his logistical support of the guerrillas. There must be close cooperation between helicopters and low-speed, fixed-wing aircraft in reconnaissance. Above all, we must win the populace over to our side, preferably by exemplary conduct on the part of all our troops. Valuable intelligence will be gathered in this way, and guerrillas can be sought out by airborne forces, trained mountain troops, rangers or, in certain areas, by lightly motorized infantry.

Guerrillas can be effective when properly used, but they can never be effective alone. They can be dangerous to an army untrained in their methods of combat. Whatever the situation in which we find ourselves, we can cope with irregulars if we prepare ahead of time.

We must remember that guerrilla forces must be favored by three conditions if they are to hope for any success. The populace must be a friendly one, on which irregulars can draw for food, refuge and intelligence. The terrain must be favorable to guerrilla operations by providing cover and concealment, yet be rugged enough to restrict the use of enemy armor and heavy weapons. Lastly, there must be an outside friend to supply ammunition, weapons and other equipment.

Even if all these conditions prevail, irregulars must realize what they can and cannot do. They can cause casualties by cleverly using ambush. They can temporarily sever lines of communication and destroy key installations by raiding. These things aid in fulfilling their most important function: that of diverting large numbers of troops from other more important efforts. Guerrillas can seize ground, but they cannot hold it. They must never engage in fire fights with units of equal or greater strength, for to do so invites disaster.

FORD INSTRUMENT CO.
DIVISION OF SPERRY RAND CORPORATION
Long Island City 1, New York

MISSILE SYSTEM CAPABILITIES

FORD INSTRUMENT

JUPITER JUPITER C REDSTONE

missile experience...

includes systems, subsystems and components for many of our country's most advanced missiles

Ford Instrument Co. is currently engaged in research, development, and production on a wide variety of missile projects. Notable among these are the complete inertial guidance and control systems for the Army REDSTONE and JUPITER missiles; many such components for the satellite-launching JUPITER C; launching and control order computers for the Navy's TERRIER and TARTAR missiles; Air Force missile projects, including a no-gimbal inertial system; and a wide variety of ground support and production test equipment.

Today, Ford Instrument has the experience, facilities, and capabilities to enable it to undertake complex missile contracts of every type from component or subsystem to complete weapons system. And, as a Division of Sperry Rand Corporation, Ford Instrument's own weapons skills are backed up by the resources of a vast and diversified organization of complete technical and financial responsibility.

TERRIER Missiles on U.S.S. Boston. Ford Instrument-built computers solve launching and control order problems for this beam-riding missile. U. S. Navy Photo.

U. S. Army JUPITER (left) and REDSTONE Missiles. Cover shows satellite-launching JUPITER C. The guidance and control systems for these ABMA missiles were developed and produced by the scientific team at the U. S. Army Ballistic Missile Agency and Ford Instrument Co. U. S. Army Photos.

More than four decades of military systems engineering insure operational equipment... whether systems, subsystems or components

FORD INSTRUMENT

missile abilities

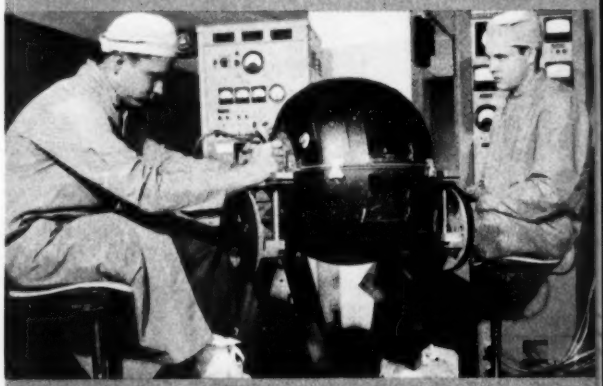
A unique combination of electronic, electrical and mechanical skills, devoted since 1915 almost exclusively to furtherance of military science, is the basic strength of Ford Instrument Co. Almost all of Ford Instrument's existence has been devoted to research, development and production of highly complex equipment, with laboratory precision and accuracy, yet able to withstand the rigors of military environments.

The proven reliability and extreme accuracy of the REDSTONE and JUPITER missiles, which employ guidance and control systems built by Ford Instrument—as well as the record of the JUPITER C—indicate clearly the company's capabilities in the area of guidance and control.

Another recent example of this type of work is Ford Instrument's design and manufacture of intricate warhead safety, fuzing and arming devices capable of withstanding the roughest environments. Few manufacturers are willing or able to undertake projects such as this and to carry them to completion. Ford Instrument has earned the reputation—which we are proud to acknowledge—of being able to do the "toughest jobs" in missile development and manufacture.

Contracting agencies or industries, with requisite security clearance and "need to know," are invited to examine further Ford Instrument abilities in difficult phases of missile research, development and production . . . whether for complete systems or specialized subsystems and components.

Warhead devices for missiles and other modern weapons. This precision warhead device (inset) made by Ford Instrument, successfully withstood atmospheric re-entry in the nose-cone of an Army JUPITER missile, shown here shortly after recovery from ocean.



Stable platforms. Technicians here are performing test operations on a stable platform for the U. S. Army JUPITER Missile; these platforms are in quantity production at Ford Instrument.

Launching and control order computers for TARTAR Missiles. Electronic and electromechanical portions of this all-transistorized modular computer are shown at left and right.

Actuators for jet vanes, air control-surfaces. This rotary actuator is driven by 1 hp d-c servo motor (shown in foreground with cable attached). Both motor and actuator are made by Ford Instrument.

Missile-borne inverter. Vital missile component gets rigorous, precision performance checkout at console. All of the missile products delivered by Ford Instrument undergo full and complete testing procedures.

Missile-borne computers. Ford Instrument computer experience covers every phase of ballistic missile guidance and control. Typical is this control computer, shown during test, for U. S. Army JUPITER.

Specialized gyros and accelerometers. Ford instrument pioneered in the quantity production of air-bearing gyroscopes and accelerometers. Air-bearing gyro here undergoes final test in special Ford-built test equipment.

Ground support equipment. Here pre-launch computer undergoes final adjustment. Modular techniques enabled this unit to be produced and delivered in less than 6 months.

current missile projects and equipment

SYSTEMS

- Inertial guidance and control systems and related ground support equipment
- No-gimbal pure integration inertial system
- Launching and control order computers
- Command guidance systems (for both missile and drone applications)
- Trajectory data system
- Missile velocity indicating system for test range applications
- Target locating system
- Radar target prediction and interpretation systems

SUBSYSTEMS (Missile-Borne)

- Safety, fuzing and arming devices
- Stable platforms
- Computers (control computers, guidance computers)
- Programming devices
- Inverter-regulators
- Transmitters

GROUND SUPPORT EQUIPMENT

Maintenance area, launch site and monitoring equipment, including:

- Impact prediction computer
- Aiming correction computer
- Pre-launch computers
- Test panels for computers and stable platforms
- Shipboard dynamic testers
- Monitor panels for guidance, stable platforms, alignment, and laying
- Test fixtures for a wide variety of components
- Combined sensor displays

PRODUCTION TEST EQUIPMENT

Systems and component test equipment including:

- Special environmental test units
- Quantity production test units
- Planetary test stands

SPECIALIZED COMPONENTS

- Gyroscopes
- Accelerometers
- Actuators
- Mechanical integrators
- Transistorized amplifiers
- Relay packages
- Computer modules, both analog and digital, for a variety of missile problems
- Timing devices
- Shipping and storage containers

Drafting. One of Ford Instrument's many drafting departments, where topflight design draftsmen and technicians support research and development and also produce production drawings.

Technicians perform final checks on stable platforms for U. S. Army REDSTONE Missile in ultra-clean assembly area.

FORD INSTRUMENT

Extensive production and laboratory equipment implement engineering skill

Ford Instrument physical facilities make it one of the largest high-precision shops in the United States, fully equipped to handle every phase of development and production of complex missile systems. Initial studies, research, development, design, prototype construction and testing, final quantity production and quality control are expedited and facilitated by the most modern and highly developed equipment available for precision work.

Contracting agencies and industries possessing requisite security clearance are invited to make an on-the-spot inspection of Ford Instrument facilities.

Equatorial test stand, built by Ford Instrument for its own laboratory facilities, is used for conducting basic drift error research. This type of unit can also be built to contractor order.

Many hundred standard machine tools, a few of which are shown here, are available at Ford Instrument for missile applications, as well as a wide variety of special machine tools.

Missile-borne tape programmers being assembled. Continuous development in this field is under way at Ford.

Air-bearing gyro accelerometer is tested here in Ford designed and built special fixture.

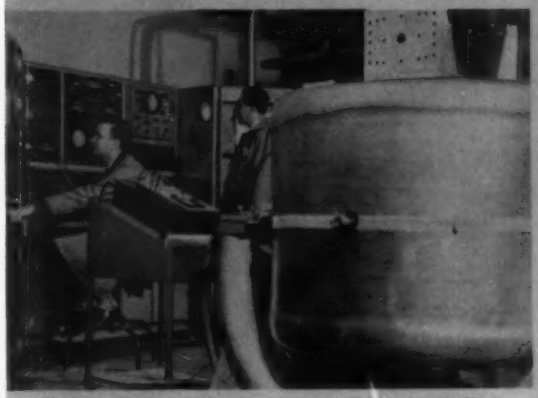
"Univac" computer is one of the general-purpose high-speed digital computers at Ford Instrument for engineering computations.

missile facilities

Typical of Ford Instrument Facilities:

- More than 30 laboratories for research, development and design in electronics, hydraulics, magnetics, mechanics and nucleonics, including fully equipped, ultra-clean gyro facilities.
- Advanced digital computing facilities with high-speed general purpose computers, including a Remington Rand "Univac." Ford Instrument scientists also have access to computing facilities of the Remington Rand Univac Division.
- An engineering shop, as large as many small manufacturing concerns, staffed by expert machinists and technicians, working under direct engineering supervision. The company also has fully staffed and equipped "short run" and prototype shops.
- Full production facilities—machine tools, shops, finishing and inspection facilities—for *large-scale* precision manufacture.
- A series of "clean rooms" for assembly of missile components. These rooms are dust-proof, temperature and humidity controlled areas with full environmental control procedures.
- Complete, elaborate environmental and other test facilities.

Giant centrifuge in special building at Ford Instrument can attain 60G's. Complete stable platforms—as well as components—are tested in this unit.



Vibration testing of missile component. Such tests duplicate inflight environments that components undergo when missiles are fired.

A special machine is used to mill irregular internal contours by an "electrical discharge" method, with extreme dimensional accuracy.

Technician grinds gyro part to a length within 20 millionths of an inch—typical of tolerances being met in missile work at Ford Instrument.

Engineering Shop. This shop makes breadboard models and other experimental products. It has much specialized equipment, e.g., toroidal coil winders, lapping equipment, in addition to standard machine tools.

Over four decades

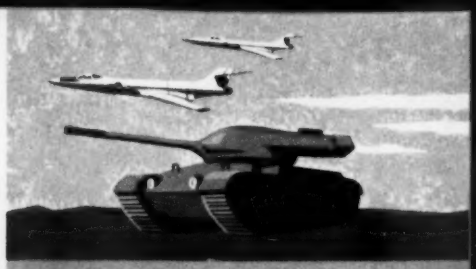
of exacting weapons

control systems

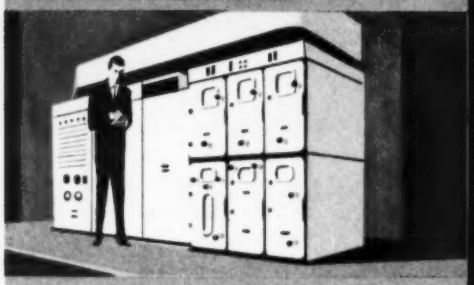
FORD INSTRUMENT related experience . . .

Ford Instrument Co. has been devoted to weapons control since its inception, originally pioneering computers and other automatic equipment for direction and control of naval gunfire. Today, Ford Instrument develops and produces equipment of wide variety for every branch of the armed forces and the U. S. Atomic Energy Commission, both directly and as a subcontractor through major manufacturers. The illustrations here give a small cross-section of the many hundreds of activities (other than missile) under way at Ford Instrument.

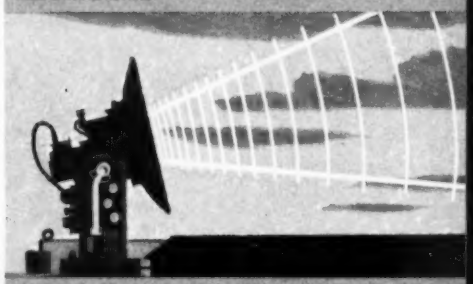
Ford Instrument welcomes inquiries from responsible contracting agencies in government or industry. Liaison engineers are available to discuss specialized requirements or to assist in generation of requirements for any service.



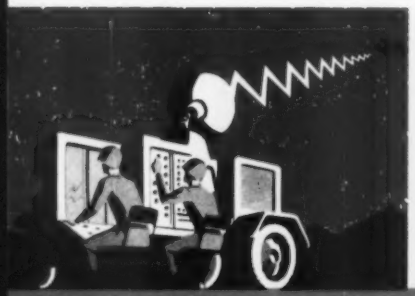
Navigation computers. Ford Instrument develops and produces automatic navigation systems for both U. S. Air Force and U. S. Army —for aircraft and surface vehicles.



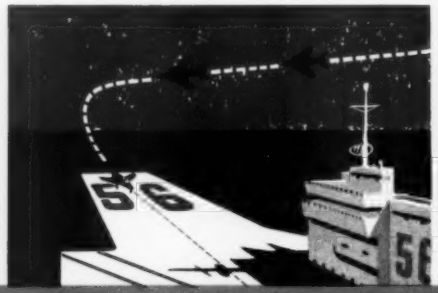
Special-purpose computers. Ford Instrument computers are in wide use in all branches of the armed forces.



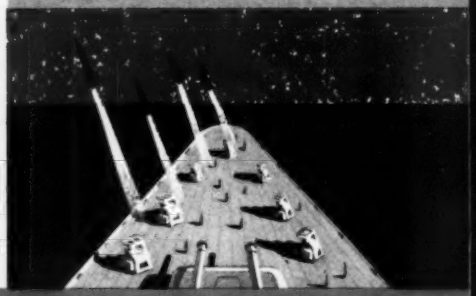
Telemetering and radar systems. A variety of projects at Ford Instrument range from "datalink" and other high frequency techniques— to radar intelligence interpretation and prediction projects.



Drone control. Battlefield surveillance aircraft are remotely controlled by Ford Instrument system (radar, transmitting, computing and plotting equipment).



Mission control systems. Latest results of operational research and linear programming theory are implemented by Ford Instrument techniques.



Rocket and gunfire control. Ford Instrument has developed and produced a tremendous variety of fire control equipment for naval and land-based guns and rockets, as well as torpedos and missiles.

FORD INSTRUMENT CO.

DIVISION OF SPERRY RAND CORPORATION

31-10 Thomson Avenue, Long Island City 1, New York

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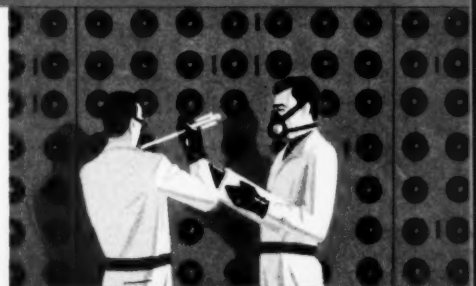

Nuclear development. Ford Instrument nuclear activities include reactor designs, instrumentation, control systems (including studies of digital techniques in reactor control) and highly classified weapons projects.

ARMORED INFANTRY IS DIFFERENT

LIEUTENANT COLONEL BERGEN B. HOVELL

THE Pentomic organization has converted infantry regiments into battle groups that strongly resemble armored infantry battalions, and organic armored personnel carriers are now included in the division. These developments and the retention of armored infantry battalions indicate that they are here to stay, and that all varieties of infantry will have the greater cross-country mobility, armor protection and firepower of armored infantry.

Organized and trained along sound infantry concepts, armored infantry employs both infantry and armor techniques. The differences between infantry and its armored brother, while not great, are important, and are generally either ignored or exaggerated out of all proportion.

Armored infantry is flexible

It is generally supposed that armored infantry supports tank units of the armored division (and armored group). This seems a reversal of roles for the Queen of Battles, but in practice armored infantry and armor are mutually supporting. Since the armored division is organized, equipped and trained to fully exploit the firepower, speed, mobility and shock action of its tanks, primary consideration must be given to their most effective use. That is the prime article of armor doctrine.

In practice, the question of supporting or supported roles for armored infantry almost never arises. Armored infantry, as units, and their armor counterparts, have a strictly transitory life. Although they exist in garrison for administrative purposes, they die the moment the first shot is fired, when suddenly they are transformed into company teams and battalion task forces composed not of infantry *or* armor, but of infantry *and* armor, plus artillery and engineers. These combined-arms teams and task forces are tailor-made for specific jobs. They can instantly reorganize to meet a changed tactical situation. Their infantry and armor components are mutually supporting, co-equal members of a flexible team.

Here's how the system works. A combat command leader reinforces each of his armor and infantry battalions by attaching a specified number of organic companies from one to another. This cross-reinforcement determines the strength and composition of his battalion-size task forces, but not their organization for combat. He organizes for combat by directing his armor and infantry companies to form teams by cross-reinforcing one another. Depending upon his mission, the enemy, the terrain, and the troops available, he determines whether teams will be pure (an organic armor or infantry company), tank-heavy or infantry-heavy (preponderance of one or the other), or balanced (an equal number of both). The task force commander also decides how supporting artillery and engineers will be used. The result is a flexible, combined-arms unit at each level with a specific combat mission.

A second article of the armor faith is: no attachments or detachments below platoon (the smallest tactical unit under an officer). No team (company) headquarters is wasted by leaving it without platoons. No platoon is attached to another except in most unusual circumstances. This makes sense, for it insures that flexibility will not degenerate into confusion.

This organization for combat is only an initial one. As the tactical situation changes, each successive commander, beginning at task force, modifies the attachments and detachments among his units. This extreme flexibility has led commanders in armored divisions to adopt "stay loose!" as their characteristic greeting.

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The infantry commander's dilemma

The flexibility of armored infantry poses a dilemma for its commander. On one hand he must lead an organic infantry unit on a day-to-day basis, keep his command up to standard in terms of morale, discipline, and individual and unit proficiency, and make sure his subordinates know not only their own tactics and techniques but those of the combined arms. He must train them to fight effectively when not under his eye.

The infantry commander must be ready to lead and fight a combined-arms team or task force in which his own units or men may be in the minority. Even if fortunate enough to be cross-reinforced habitually with elements of the same armor unit, he must achieve desired results in combat when working largely through attached subordinate commanders. His armor counterpart, of course, faces the same problem.

The first horn of that dilemma—the task of commanding an organic infantry unit—deserves elaboration. It is evident that armored infantry is different. What is not so apparent are the costs of being different. Before examining these costs, we must first realize that they are incurred to good purpose.

Advantages of being different

An armored infantry battalion is a separate unit that can sustain itself in combat for limited periods. It has a command element (the CO and staff); a reconnaissance element (scout platoon); a base of fire (4.2-inch mortar platoon); a support element (support and maintenance platoons plus ancillary elements such as the medical section); and four rifle companies. It is completely mobile, has an integrated radio net for command and intelligence down to squad, and packs a terrific punch. It can move across country at almost the pace of tanks, force a hasty river crossing with minimum assistance and deliver its infantry on or near the objective safe from artillery and small-arms fire and in condition to launch spirited assault. Squad weapons range from M1 rifles to ARs and rocket launchers. Backing up the rifle squads are organic platoon, company and battalion fire-support means: caliber .50 machine guns on APCs, machine-gun squad in each platoon, machine guns and 81mm mortars in the company mortar platoon, and battalion 4.2-inch mortar platoon. Mounted or afoot, in offense or defense the armored infantry battalion reaps many benefits from its difference. But these benefits don't come free.

Cost of being different

Perhaps the most important cost is that more vehicles, equipment, support and administration mean fewer fighters and more administrators—no trouble when the battalion is at full strength, for the TOE provides adequate administrators and fighters. Aside from combat casualties, trouble arises when routine losses occur through attrition. Whether they occur among administrators or fighters, replacements for the bulk of these losses are taken out of the fighters. The administration-supply-maintenance apparatus must be maintained to provide ammunition, POL, rations and essential services that fighters need to succeed in combat. When replacements are not forthcoming, fighters must be used to plug vital gaps in support elements. Under the impact of heavy losses through attrition, shifting of fighters into support positions ultimately can render the combat elements impotent. Even under "normal" conditions, the commander of an armored infantry battalion must face the challenge of accomplishing his mission with a smaller force of fighters, yet insuring that the

Armor and infantry in two wars. The differences between

World War II. Tanks and infantry push through a break in the Siegfried Line

administrative tail does not wag the combat dog.

The second item of cost is no less important: more maintenance for more equipment means less time for training fighters. Newly assigned officers are shocked by the staggering amount of regular, scheduled maintenance required by an armored rifle company's array of vehicles, weapons and equipment.

Failure to recognize and meet these requirements would be disastrous. If armored infantry should lose vehicles through poor maintenance, it could not keep pace with the tanks and could not accomplish its mission. Enough maintenance time must be scheduled and besides, time is needed to train drivers, assistants, and crew members in proper checking and servicing. Finally, officers and noncommissioned officers in command positions must be trained to plan, conduct and supervise maintenance.

The training problem is intensified because the armored doughboy needs a wider range of skills than his straightleg counterpart. He must know mounted battle drill, crew-maintenance procedures, and many other related subjects peculiar to armored infantry, and he must learn more in less time.

When fighters rely too much upon their equipment they tend to become chairborne, physically and psychologically. Soldiers accustomed to riding into combat do not easily develop the stamina and endurance for tough or extended dismounted operations. After seizing an objective they may be too exhausted to maintain contact with the enemy and to reorganize promptly against counterattack. If lulled into a false sense of security by the thin skin of their APCs, they may feel no urgent need to dismount to post outguards during brief halts where enemy action is likely. Accustomed to communicating freely by radio, they may be slow to resort to more pedestrian means when radio communications fail. To defeat such tendencies, the commander must condition his fighters as if they were straightlegs and teach them to exploit their equipment fully without totally depending upon it.

The resupply problem

Armored troops use an inordinate portion of their time and efforts in resupply, which reaches dimensions seldom if ever encountered by straightlegs. Unless it is given continuous command attention and support at every level, the resupply hurdle can prove insurmountable. Granted, the support platoon's gasoline tankers and ammunition vehicles are chiefly used for bridging the gap to the supply base, still the fighters must report their expected resupply requirements and the time and place for delivery; and they still must distribute to vehicles and fighters.

Look at the resupply problem through the eyes of a typical team commander. From experience he knows his POL usage factors (about two gallons of gas per mile for an APC and up to five for a medium tank). He knows a pure armored infantry team's tracked vehicles alone require about thirty-four gallons per mile. He estimates that a balanced team of two tank platoons and two infantry platoons use about seventy-six; adding an additional gallon for essential wheeled vehicles, he would need about seventy-seven gallons per mile.

Our commander's balanced team is to seize a distant objective. He figures he can average twelve miles an hour across country and over roads, so he estimates his need at 1,200 gallons—the capacity of a standard tanker—every seventy-eight minutes, with no spillage allowance. Comparing this estimated consumption rate with what all his vehicles carry, he computes the safe

armored infantry and foot-slogging infantry are not great

Korea. Infantry and tanks assault across the snow against a Communist hill

Armored infantry's vehicle is neither a 2½-ton truck nor a tank. The armored personnel carrier has cross-country mobility

time-distance his team can travel before resupply.

An experienced team commander will not invite disaster by allowing his maneuver and fire plans to disregard his resupply capabilities. He knows that every mile advanced decreases his basic load of POL and ammunition and increases the turnaround time of his supporting supply vehicles. He must follow the sound practice of topping off each vehicle with gas and replenishing his ammunition supply at every opportunity.

But resupply conditions are always difficult, and there's no indication of improvement. Our team commander realizes that so long as enemy air remains active most of his resupply must be done at night or under poor visibility. Enemy action may prevent bringing supply and combat vehicles together even at night, so he faces the prospect of manhandling not only tons of ammunition but up to thirty jerry cans of gas for each APC and up to forty for each medium tank. He realizes that enforcing strict sound and light discipline slows distribution, so that resupply costs him not only manpower but time.

Our team commander understands his resupply problem and places it in proper perspective. He gives it—and sees that every unit commander gives it—the required attention.

The task of organizing and fighting

The second aspect of the armored infantry commander's dilemma—the task of organizing and fighting a combined-arms team or task force—poses a major challenge. Again let's look at an armored infantry battalion commander whose balanced task force is half infantry and half armor. An armored engineer platoon is attached or in direct support, and he has the normal complement of an artillery battalion's liaison officer plus forward observers. He must weld these diverse elements into an effective combat machine and achieve the desired results mainly through attached subordinate commanders. This calls for an order of leadership higher than that required to command an organic battalion.

Fallacy of the tank-killer team

An operations order can form teams under designated commanders, but it takes much more than that to make teams ready to fight. It takes education and indoctrination of all ranks. Each soldier, regardless of rank or branch, must understand that all others are essential if the team is to accomplish a common purpose. He may be *with* the team, but without that conviction he is not *on* it.

The first step is to dispel long-accepted fallacies which ignorance has fostered in a branch-conscious Army. Admittedly, some are so illogical they are dispelled the moment soldiers of different branches get together, but others seem more plausible and require correction.

A good case in point concerns the very cornerstone of the armor concept: the tank's mission. Somehow the fallacy has become broadly accepted that the tank's main purpose is to destroy other tanks. Perhaps it arose from reference to the tank's antitank gun as its "primary armament," or from armor's article of faith that "the best weapon against a tank is another tank."

In any event, overemphasis of this antitank role has given many armored doughboys and their counterparts a distorted picture of the tank's main purpose. Such soldiers can hardly feel they are interdependent in pursuing a common purpose. This distorted concept stresses the *secondary* rather than the primary role of the tank. The tank *is* a most effective AT weapon, but at first it was armed only with machine guns because then its primary purpose was—as it still is—to destroy enemy personnel. The so-called "primary armament" was added as an afterthought to prevent interference by hostile armor. Men armed with the facts never swallow the fallacy of the "tank-killer team."

No new infantry tactics

Another mistaken notion is that armored infantry has developed a new kind of tactics which bear little or no resemblance to basic infantry doctrine. Not so. What armored infantry has is not new tactics, but greater flexibility and speed.

Still another widely held misconception is that during mounted operations tanks set the team's pace. Although consistent with armor theory and a desirable ideal, in practice this is impossible. Failure to appreciate this simple fact frequently engenders confusion and frustration. Worse, it results in the unfounded charge that armored infantry when mounted fails to keep within proper supporting distance of the tanks, but the facts prove that the armored doughboys are not to blame.

Armored infantry drivers and vehicle commanders may fall asleep at the switch, but only rarely. In most cases the armored doughboys lag behind and creep over crests because their APC—at least the M59—is so underpowered that it cannot pace a tank over undulating terrain, or even on some hard roads. In cross-country movement the M59's shorter length and light weight make it even slower. It rides rougher and is less capable of closing a gap, and less maneuverable on tight turns. Only on straight, hard, level surfaces can the M59 match a tank's speed.

Although these differences between APC and medium tank are not great, they must be fully considered. To work as a team, tanks and carriers must move at a regulated speed. Consistent with the limitations of

and provides more protection than the 2½-ton truck. But it is not a fighting vehicle like a tank and lacks armor's thick skin

the APC, the team must fully exploit the speed of the tank. This means that, in practice, the mounted armored infantry, at maximum speed, sets the pace for the team.

The pace of dismounted operations

Another fallacy is that armored infantrymen somehow fight mounted. They may look impressive in a mounted charge and they may be closing in for the kill, but they are not ready to fight. Unlike tankers, armored doughboys must dismount to fight.

Once the infantry dismounts, the tank's pace must match that of the foot soldier if the team is to be effective. This does not mean that the tanks constantly must creep at a slower pace, for to do this would fail to exploit their capabilities and needlessly expose them. Instead, they must move quickly, by leaps and bounds, adjusting their over-all rate to the foot soldier's progress. They may initially support the infantry by firing from defilade, then charging through or around the infantry to seize the objective. Here the significant fact is that the tanks must remain within supporting distance of the infantry. Even when the dismounted operation is completed, the tanks must remain while the armored infantry reassembles and remounts. Again, the dismounted doughboy sets the pace for the armor-infantry team.

The APC: tank or truck?

Other glaring misconceptions are that the APC can be used as a 2½-ton truck, and that it is the equivalent of a tank. Both fallacies stem from ignorance of the purpose, characteristics, capabilities and limitations of the APC, which is neither tank nor truck, although it comes closer to being a tank.

Consider the APC's purpose and capabilities. If a truck sufficed, the armored doughboys would have it; it costs less than an APC and is cheaper to operate and maintain. The APC is a class apart, its protective armor and caliber .50 machine gun being more suited for offensive operations. It has better cross-country mobility and more protection against overhead artillery and small-arms fire, and atomic effects. And it floats. To use it as a truck wastes its capabilities.

Those who consider it a tank ignore the APC's purpose and weaknesses. If armored infantry needed tanks they would be issued. They are not necessary, and current models could not serve as lightly armored squad carriers. The APC does not fight as a tank; it is vulnerable to tank and AT fire, its armor is thin and has no slope, it has no antitank armament. To use it as a tank invites annihilation of the armored infantry and defeat of the tank-infantry team.

Correct thought relates the capabilities and limitations of the APC to its purpose. It can and does take calculated risks, but it cannot afford to take unnecessary or foolish ones. It is designed and intended for offensive uses, keeping the armored doughboy moving in concert with the tanks and supporting the dismounted assault by firing from hull defilade. From similar positions it protects not only the rear and flanks of a defensive position but also vulnerable avenues of approach in its front.

Use of subordinate leaders

The final aspect of the team and task force commander's dilemma is working mainly through attached subordinate leaders. Too frequently some guidelines for this are overlooked or simply ignored.

The first guideline is that an attached subordinate commander must be welcomed as a working member of the team. He must be treated as one who belongs, shown the same confidence, respect and concern for his welfare as you show to your own men. Treat him as a second-rater and he won't be the only one to suffer. Without equal status, he cannot serve the team effectively, and when he is ineffective there is no team. He must be fully utilized not only to command but his advice should be sought concerning the most effective employment of his men, their equipment and weapons. If, due to circumstances, his advice and recommendations cannot be followed, he must be consulted as to how various alternative courses of action might affect his unit's capabilities and limitations. In short, encourage him to use his special knowledge and skills for the team's success.

The second guideline is just as important: an attached subordinate commander must be held strictly accountable for results. As a working member of the team he must be as carefully instructed, supervised, and *corrected* as if he were assigned. He must live up to the same rules and meet the same standards. If he fails to measure up, he must be relieved and returned to his parent unit. There is no room for second-raters on the tank-infantry team.

Armored infantry, though still infantry, is a hybrid. Unlike straightlegs fighting *with* tanks, armored doughs habitually fight as mutually supporting, co-equal members of the tank-infantry team. The integration process necessitates tailor-made combined-arms teams and task forces characterized by unprecedented flexibility and speedy employment. These characteristics have the effect of compressing the "normal" time table for planning and conducting combat operations.

Possessing unique characteristics, armored infantry today most closely meets the requirements for success and survival on the atomic battlefield. For that reason it is setting the basic infantry pattern for tomorrow.

CANNONS AND MISSILES

COLONEL BEVERLEY E. POWELL

There's a need for dual capability in the artillery of the Pentomic field army

THE field army fights with fire and maneuver. Traditionally, its field artillery's supporting fire provides the ground-gaining arms with that additional power necessary to permit them to apply decisive maneuver against the enemy. During World War II and Korea, the fire-and-movement team attained its highest peak of effectiveness and efficiency. Today, as we seek a solution to the dilemma imposed by being required to be prepared to fight with or without nuclear weapons, we continue to apply the fire-and-maneuver formula, considering maneuver the decisive factor in tactical and organizational concepts. Yet our insistence on maneuverability faces us with many imponderables.

Today, most of the field army commander's atomic artillery is relatively short-ranged, and concentrated in division and corps units. These weapons can quite easily handle close-in targets in the enemy's zone. However, attack of the increasingly important and ever more numerous targets deep in the enemy's zone is assigned to only a very few of his longer-range missiles. A more judicious apportionment of these longer-range systems —such as Corporal and Redstone and their successors —will enable the army commander to saturate the enemy's zone with nuclear fire.

We must be prepared to meet both extremes of enemy capabilities. We must be ready to fight a war in which no nuclear weapons are used, yet be prepared also for one in which the employment of battlefield atomic weapons is unlimited. If we are to be prepared for both eventualities, then our techniques of employment and deployment must be readily modified to meet that debatable circumstance which will see only limited employment of nuclear weapons. In our thinking we have

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Maneuver and fire support artillery
—155mm. self-propelled gun

Fire and maneuver support artillery
—Sergeant surface-to-surface missile

been led astray by refusing to realize that in a nuclear conflict, firepower dominates the battlefield. When the army commander is able to saturate the enemy's entire zone, the objective of maneuver will be to facilitate the application of nuclear fire. In a nuclear-free war, however, the maneuver element will continue to be decisive, and firepower will continue to facilitate maneuver. Our tactical and organizational concepts must develop this dual capacity, stressing the decisive element as occasion demands.

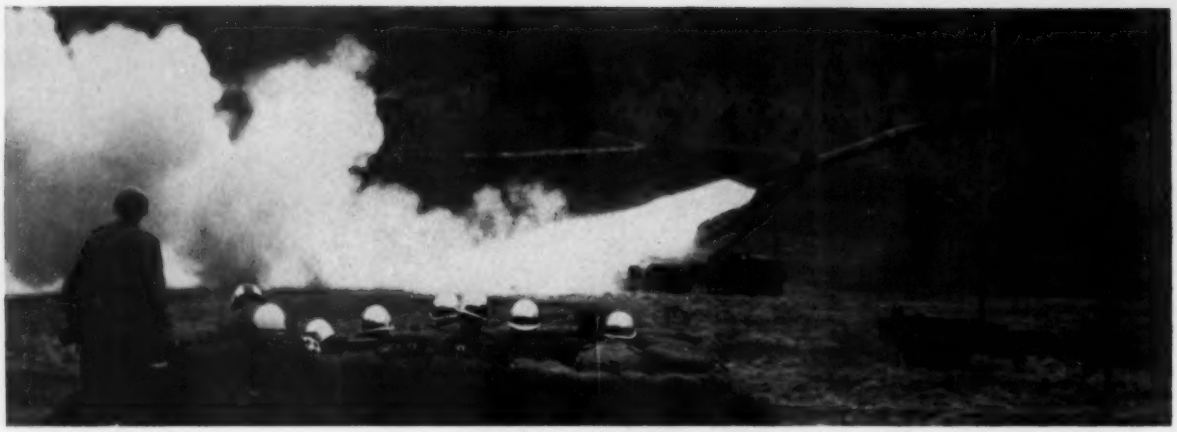
Artillery can meet both extremes

The artillery offers the solution to our dilemma. It must be organized primarily to support the maneuvering arms in a nuclear-free battle, employing weapons systems having the utmost of dual capacity. The weapons systems to fit this role should predominate in cannon, because only cannon have the inherent accuracy and flexibility essential for closely supporting the maneuver element. Missiles used solely in a non-nuclear role present prohibitive logistical problems and expense.

To further enhance our nuclear capability, cannon systems at divisions and corps should be supplemented by missiles. These missiles systems must be provided in such numbers that, when their nuclear role is added to the atomic cannon's, the resulting firepower can saturate the corps and division portions of the enemy's battle area.

This concept requires ever-increasing flexibility in cannon artillery: lighter weapons with greater accuracy and longer range. It visualizes the missile at all levels as basically a nuclear weapon. Corps and division missiles will, of course, augment the field army commander's nuclear firepower, but these missiles will be restricted to systems which have the dual capacity of augmenting the non-nuclear firepower of the unit supported. Such a concept embraces Honest John today, and should determine the characteristics of the division's missiles of the future.

Our long-range missile systems require only nuclear warheads under this concept, and they assure the army commander's ability to saturate the enemy army's area with nuclear fire, in depth. They also provide him with his own nuclear deterrent. Such missiles must be centrally controlled at army, in sufficient quantities that, when added to the nuclear weapons of corps and divisions, they can completely saturate in depth the enemy's area confronting our field army. In fact, these long-range missiles will enable the army commander to pass from nuclear-free to nuclear combat. These systems must be immediately responsive to his orders. Additionally, they must be so organized that the army commander can coordinate and control all the other nuclear-delivery means in all units of his force.



NATO officials watch demonstration of Honest John firing by members of Army Missile Command in Italy

Highly centralized control required

In a field army, only those units having these long-range missile systems should be organized and deployed solely for nuclear battle. Thus, their organization will require highly centralized command control of widely dispersed units having rapid reaction time, each possessing the utmost self-sufficiency as regards launching reliability. These missiles systems would be organized into brigades at army level—one-launcher fire units each connected directly to its brigade by automatic command and fire-direction link. Corporal and Redstone could be fitted into this concept today. Late training literature concerning Sergeant and Pershing indicates they would be suitable replacements in the future.

Organizationally, then, while our corps and division artillery must be designed with the primary mission of supporting maneuver elements in a nuclear-free war, it must also employ weapons systems that can bring down immediate nuclear fire. The field army's artillery must be organized for nuclear combat. Thus it becomes apparent that the employment of his artillery, at all levels, assures the field army commander his continuing and immediate dual capacity. While any decision to deploy artillery must accept the possibility of nuclear attack, I do not foresee that the future non-nuclear battlefield will introduce any major changes in the current, proven fire-and-maneuver concept of tactical operations. I place no less emphasis on the basic principles of mobility, dispersion, span of control, and ability to communicate and to concentrate quickly —fundamentals equally vital in either type of war.

The field army's cannon artillery engaged in a nuclear-free battle habitually will be deployed to fulfill its primary mission of supporting the maneuver elements. In turn, non-nuclear missile units will be deployed to reinforce the cannon artillery. However, every nuclear artillery system, be it cannon or missile, must be always prepared to fire on an atomic target at a moment's notice. The artillery fire plan will habitually include a nuclear fire order which provides for saturation of the enemy's area. Coordination and control of nuclear fires must be centralized to the maximum extent possible at corps and army. Missiles systems having only nuclear warheads will be controlled by army.

Artillery's integrity must be maintained

It is essential that the artillery's integrity be maintained at every level at all times. Units necessary to its functioning must be organic to it. This is particularly true in regard to target acquisition means. We must recognize the distinction between reconnaissance and surveillance agencies on the one hand, and target acquisition operations and units on the other.

It has been suggested that the principle of increased span of control should be applied to the future field army, resulting in elimination of the corps. In this event, the army's nondivisional artillery must be organized into an artillery division of two or more brigades. One of these would be the atomic-missile brigade we have mentioned. There would be one or more cannon-and-missile brigades, according to the number of divisions in the field army. These cannon-and-missile brigades would have the weapons systems, cannon and dual-capacity missiles, currently associated with corps support, and have the same missions. This organization would facilitate centralized control of nuclear firepower, and would speed reaction time for that type of fire.

We can and must organize and train for both nuclear and nuclear-free warfare, with our maneuver elements organized primarily for non-nuclear battle. We must recognize that nuclear firepower, when it is employed, will dominate the battlefield. The artillery must provide adequate fire support during the nuclear-free battle, yet simultaneously have the capacity of saturating the enemy's zone with nuclear blasts. The army commander cannot be satisfied with a temporizing atomic capacity. He must be able instantly to employ nuclear firepower in its ultimate decisive role, at his directed initiative, or in retaliation. In addition, he must have that fire support necessary to permit decisive application of maneuver during nuclear-free combat.

That is the artillery's role.

BATTERY COMMUNICATIONS NEED MORE RANK

Lt. Col. Stanley J. Turk

ARTILLERY communications is in for some hard knocks if something isn't done about the grade structure of communications men in the 105mm howitzer and the 4.2-inch mortar batteries of the Pentomic infantry division. What I have to say applies to certain other batteries as well.

The complex communications systems of these two units certainly deserve more than being a secondary job for a lieutenant, with an E-5 as senior communications noncommissioned officer. We teach that the fire direction officer has the additional responsibility of supervising battery communications. Will he have time to adequately supervise battery communications and still properly handle the technical fire direction when, because under today's doctrine, all jobs (security, supply, survey, fire direction, reconnaissance, and communications) are much more difficult? If so, you can be sure he will be a busy man.

Today's 105mm howitzer and mortar batteries need a qualified artillery warrant officer to handle communications problems. That must be his TOE assignment just as the FDO has such a primary assignment. This may break the artillery communications field wide open, but it must be done if communications can compete with other fields, like operations. Outstanding communications chiefs would have a chance to advance and make communications a career field.

To a degree, The Artillery and Missile School recognized the tremendous job now facing the 105 howitzer and mortar batteries when it recommended that TOE authorize a lieutenant as FDO (junior S3), a major as battery commander, a captain as liaison officer, a first lieutenant as assistant battery commander (executive) and two other lieutenants (platoon executives). In addition, these batteries have the usual forward observers and reconnaissance and survey officers. That's a lot of officers for one battery, but perhaps the number could be reduced.

These batteries function as present battalions do, and these officers must generally do the work of battalion staff officers. Compared to a battalion, these batteries lack the firepower and the *communications officer*. They have the same responsibilities and certainly a comparable communications task. The 105 howitzer battery may be assigned any current artillery mission, and must provide communications on a level compared to any type of nondivisional artillery battalion. Since it is the only reliable communications link between the maneuver element—the battle group—and division artillery or its battalion, we can see the importance of this battery and its communications system. We must not allow the job of supervising communications to become secondary, or have only an E-5 as top communications noncommissioned officer.

Accepted doctrine employs the mortar battery by platoons, and this is certainly probable with the 105 howitzer battery. In fact, a recommendation by The Artillery and Missile School would enlarge the 105 howitzer battery, to give it a solid platoon structure. The added problem of operating by platoons turns any battery commander's communications worries into nightmares. Surely, we now begin to see the need for an officer whose every effort, twenty-four hours a day, is directed toward solving the battery's communications problems.

Still another communications headache not heretofore confronted at battery level has been created: the next higher operational headquarters will change, so the battery can expect to work under its parent battalion only half the time.

Now for the specific communications problems of these units. The 105 howitzer battery has eighteen or more radio sets and three or four complete wire teams. It must provide radio and wire communications to the forward observer and liaison sections. The battery has those wire and radio responsibilities that link with certain missions; for example, reinforcing, general support reinforcing, or direct support. It must constantly monitor three radio frequencies of battalion headquarters, be prepared to install two wire circuits to the next higher headquarters, and monitor two radio nets of division artillery. Besides, it will lay a wire circuit to the nearest area communications center so as to be connected to the division's area communications system, thus giving it an additional means of supplementing its own communications system. The mortar battery's communications problems are certainly as great as those of the 105 howitzer battery, with added concern brought about by its proximity to enemy positions.

The grade structures of communications personnel at division artillery, field artillery group, or battalion headquarters are adequate. However, at battery level, desirable grade features which might induce soldiers to follow the artillery communications field are lacking.

In the new batteries, the liaison officer supervises the forward observers, the executive supervises the platoon executives, and the FDO and the survey officer are certainly observed by the battery commander. All are schooled and extensively trained in fire direction, firing battery duties, artillery tactics and the like. But no one in the battery is trained to supervise communications with all its complex equipment, techniques, and specialties.

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Soldiers Versus Lawyers

Case called for further hearing

COLONEL FREDERICK BERNAYS WIENER

MILITARY law is a controversial subject, basically because the two professions involved—that of arms and that of law—have very different outlooks. It is not clear that either can successfully assert any claim of seniority over the other. Certainly a wholly different activity has won general recognition as the oldest profession, although to be sure that profession has always been essentially unorganized. But it can easily be established that the conflict in outlook between soldiers and lawyers goes back many, many centuries.

In one of the earliest of English legal documents, a report that dates from A.D. 1311 in the reign of King Edward II, there is recorded a lawsuit before the King's court that was concerned with a written agreement whose terms were self-contradictory. Counsel said of the document, "It was no lawyer who drafted such an agreement, but a man-at-arms." And the Chief Justice interposed to say, "Men-at-arms are clever hands at making a mess of work of this sort."

That same lack of mutual esteem has continued through the years. There are a great many lessons that lawyers can usefully teach soldiers, notably such fundamental propositions as, for instance, the principle that an accusation is not equivalent to proof, that both sides should be heard before a decision. And, equally, there are lessons that soldiers can usefully teach lawyers.

In the latter realm, let it be said at the outset that, even in the situations where the soldiers are right in thinking that the lawyers have gone too far, it does not add anything to the discussion to speak of "criminal lawyers."

Any lawyer who has anything to do with the trial of a criminal case is a criminal lawyer, be he prosecutor, defense counsel, judge, or, under the UCMJ, law officer or member of a board of review—because, it is hardly necessary to point out, a court-martial has no non-criminal jurisdiction. All are equally criminal lawyers. It is true that some are able, some are necessarily unable, and some few can be described only as lamentable. But they are all of them, regardless of quality, criminal lawyers.

Nor does it help to sneer at "defendants' criminal lawyers." If it is permissible to obtrude a personal note, I always recall what my first chief said about defense lawyers—and I hasten to add that this was in a large law office of undoubted respectability that would not touch any kind of criminal case. This is what he said: "Anyone can be a plaintiff's lawyer. You have to decide you have a case before you take it to court, and if it hasn't at least a fifty-one per cent chance, you don't sue. So, if you're a plaintiff's lawyer, you have a case to start with; and that's why it takes real brains and character to be a defendant's lawyer."

Now with those preliminaries out of the way, is there good ground for the widespread if largely inarticulate military view that in the enactment of the UCMJ the lawyers went too far? As I shall show, I think there is. But my doubts about the Code are far more fundamental than most of the criticisms made up to now.

CMA is here to stay

First, we are always going to have a civilian court of ultimate appeal. To begin with, every English-speaking country after World War II—the British and the Canadians as well as ourselves—provided for ultimate civilian review of military cases. In the second place, a civilian court of appeals takes the heat off individual members of Congress and takes them out of court-

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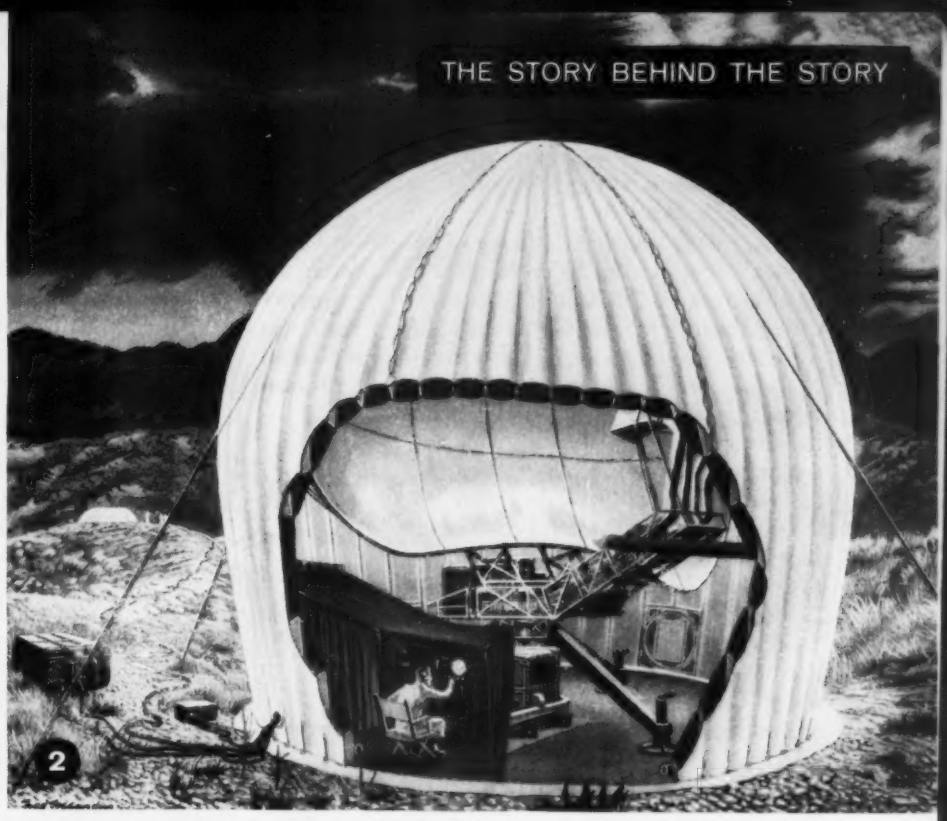
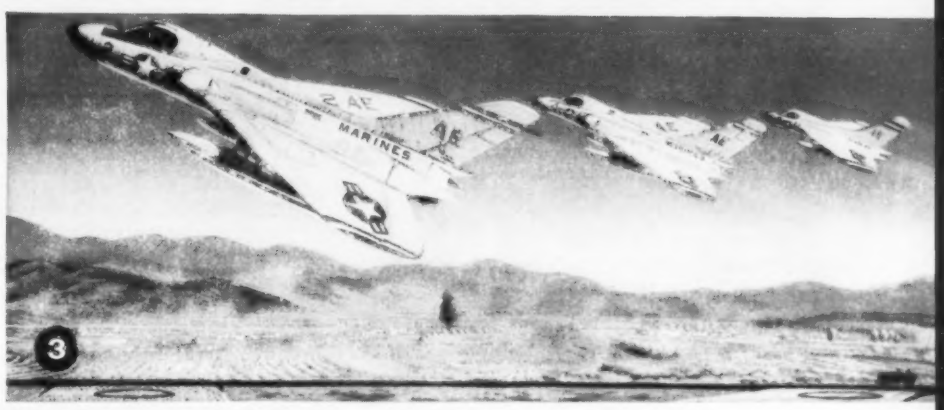
Colonel Frederick Bernays Wiener, *JAGC, USAR,* an occasional contributor, is an attorney in Washington, D. C., who specializes in appellate work. This article is a portion of his address on the occasion of his inauguration as President of the Judge Advocates Association at its annual dinner held in conjunction with the convention of the American Bar Association, at Los Angeles, in August 1958.



1 MARINE CORPS helicopters hover over TEW site, drop antenna, generators, radome and combat control shelter. Miniaturized components contribute to light weight.

2 WITHIN TWO HOURS TEW system is in operation. At approach of enemy aircraft, signals from antenna feed through monitored console to combat interceptor shelter nearby. Here range azimuth and altitude data are presented on plan-position indicators for command decision on interception.

3 ALERTED BY TEW, Marine jets scramble to intercept enemy. Extreme range of TEW provides extra minutes to throw up air umbrella over target area. Fighters carry air-to-air missiles like Sparrow I developed by Sperry.



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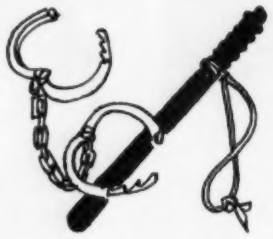
martial practice. All 531 of them—and this figure does not yet include the gentlemen from Alaska—all 531 of them can pass the buck up to the Court of Military Appeals without having to write, telephone, or visit the service secretary.

If a constituent has been convicted in a U. S. district court, Senator Schmaltz does not call on the judges of the U. S. Court of Appeals at the request of the defendant's parents. Since the Uniform Code was passed, the good Senator is in that same happy position when his constituents' misbehaved young man is convicted by a court-martial—and neither he nor any of his colleagues plan any return to their old chores in behalf of court-martialed voters or their families.



Of course, it is distasteful to the old-line JAs, who previously were immune to anything but a federal habeas corpus for lack of jurisdiction, to have civilians looking over their shoulders in connection with what was once a private preserve. Under old AW 50-½ of 1920, which senior officers will no doubt recall, cases in which the dishonorable discharge was suspended did not require action by a board of review; this meant that almost all the legal mistakes occurring in trials by court-martial could be neatly, quietly, and painlessly buried. But to indulge the hope that Congress will some day bring back the old system by abolishing the Court of Military Appeals is about as realistic as the wishful thinking of those who look to a repeal of the Thirteenth and Fourteenth Amendments, with all deliberate speed, as a cure for their school problems.

Failures of trial courts

Putting the matter negatively, it is thus certain that we shall always have a civilian court as the tribunal of ultimate appeal in military cases. But it is neither necessary nor accurate thus to rest the question. The fact is that an affirmative need for a civilian court has been effectively demonstrated in the course of the last few years. It is also a fact that the Court of Military Appeals has been called on to reverse some convictions that were literally shocking.

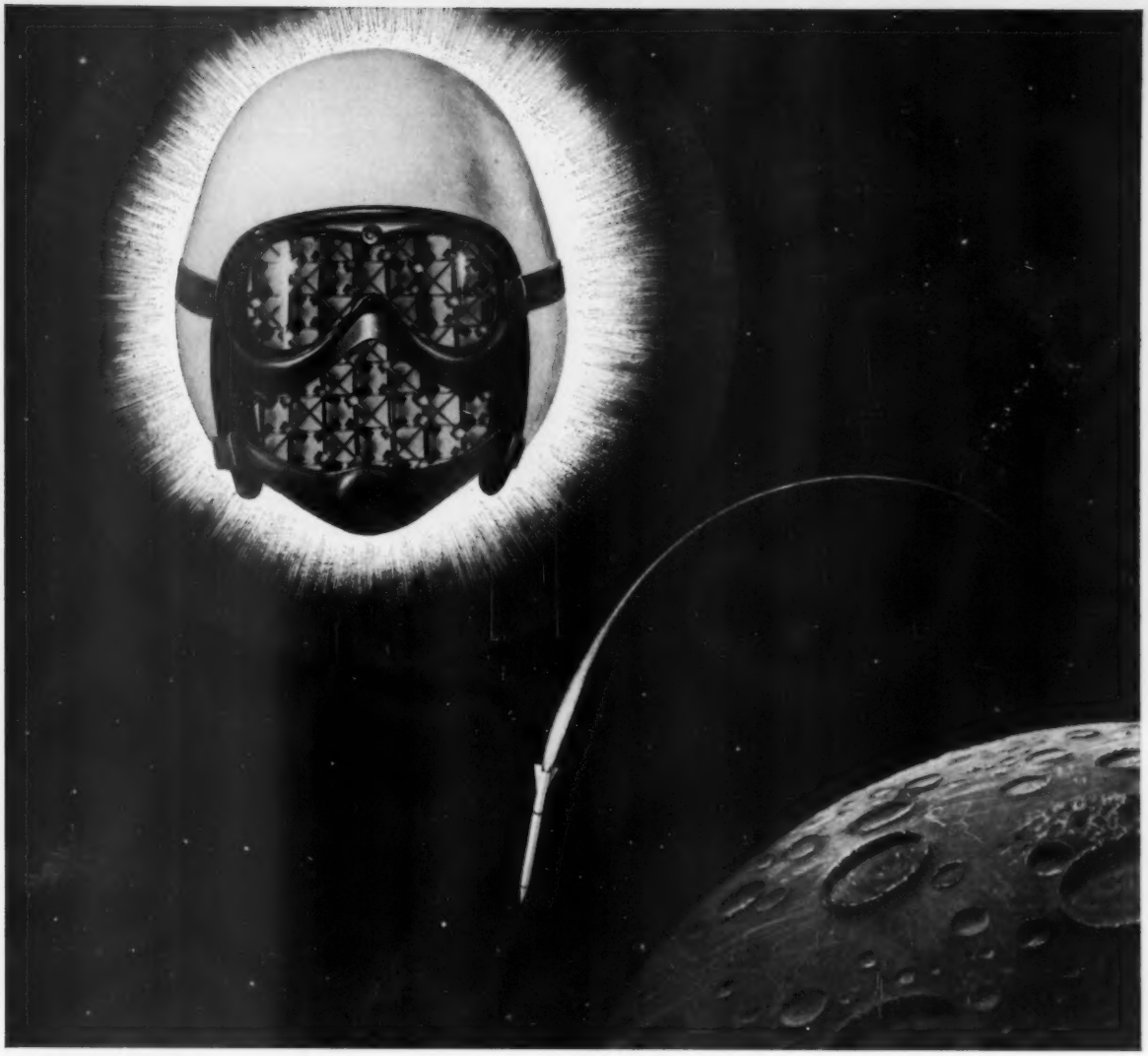
In *Deain,* 5 USCMA 44, the accused had been convicted by a GCM, whose permanent president was a retired officer of high rank. In that capacity he reported on the efficiency and fitness of certain other permanent members of the court, and conducted indoctrination courses for all the members each time a new court convened. The president was challenged for cause on the ground that he had frequently said, "anyone sent up here for trial must be guilty of something." The challenge was not sustained. The Court held, however, that it should have been, both because of the president's bias and because of the pressure he was able to exert on the other members.

Whitley, 5 USCMA 786, involved a trial by special court-martial. Its president sustained a defense objection. The trial was then recessed at the request of the trial counsel, and a new member was appointed to the court, senior to all the others, who by virtue of his rank became the new president. Presumably his rulings were satisfactory to the prosecution, because the accused was convicted. The Court of Military Appeals reversed the conviction because of improper command influence.

Another special court's actions were under scrutiny in *Sears,* 6 USCMA 661. Two servicemen were jointly tried, one of whom retained an English solicitor as individual counsel. Thereafter three judge advocate officers were added to the court. Two were removed by peremptory challenges. The third objected to a ruling by the president in favor of the accused, which was then reversed by the court-martial. Thereafter, whenever objections were made, the judge advocate member passed notes to the president, who read off the notes as his own rulings. After a number of such notes had been thus passed, individual counsel challenged the judge advocate member, but the challenge was not sustained. The Court of Military Appeals reversed the resultant conviction because of the obvious packing of the court-martial and because of the circumstance that the judge advocate member joined the ranks of the prosecution, destroying accused's rights to a fair trial.

In *Parker,* 6 USCMA 75, the accused was convicted of two separate charges of rape and was sentenced to be put to death. It appeared that the pretrial investigation was perfunctory; that the accused was not advised of his rights; that the GCM before which he was tried was appointed for the trial of this accused alone and only one day before the trial started; that defense counsel was in any event not assigned to the case until three days before the trial; that no assistant defense counsel was appointed; that the actual defense at the trial was inadequate; and that the convening authority rejected the staff JA's recommendation for commuting the sentence to life imprisonment. The Court of Military Appeals held that the cumulative effect of all these errors in a capital case required a new trial as a matter of fairness. Otherwise stated, it held that swift justice requires something more than just swiftness.

McMahan, 6 USCMA 709, was another capital case, involving a death sentence for premeditated murder. The evidence of premeditation was scanty, but appointed defense counsel made no closing argument of any kind. When the accused was found guilty as charged, which left the court-martial only a choice between death and life imprisonment as the sentence, defense counsel again said nothing, and adduced no material in mitigation. The Court of Military Appeals held that in these circumstances accused had been denied a fair trial, and reversed the conviction.



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The final case is *Kennedy,* 8 USCMA 251. There the alleged victim of the assault, called as a prosecution witness, became hostile and said he remembered nothing. Defense made a motion for findings of not guilty, and trial counsel offered to join in the motion; at this point the law officer called a recess, consulted with the staff JA, and stated he would grant a motion by the prosecution for a continuance. Trial counsel was called in, directed to move accordingly, and, when the trial resumed, that motion was granted. During the delay, trial counsel, the staff judge advocate, the chief of the staff JA's military justice section, and the convening authority, all worked together to compel the witness to testify, principally by threatening him with charges against himself. Ultimately the witness yielded to the pressures and testified favorably for the prosecution. The conviction was reversed by the Court of Military Appeals because the law officer abandoned his role as a disinterested judge and became an interested party for the prosecution, and because accused was denied a fair and impartial review by the staff JA and the convening authority because of their personal interest in the case.

Court of Military Appeals as safeguard

These six cases were not solely Army cases; some were from the Navy and others from the Air Force. But each involved fundamental unfairness. Just test them. Suppose *you,* or a friend, or a son, had been the accused in any of them; would you have been satisfied with trials like that? Of course not, and of course all six cases should have been promptly reversed by the boards of review. Yet none of them were, and all had therefore to go to the Court of Military Appeals. So, quite apart from the convenience to Congress in having a civilian court, those cases (and other cases like them) stand as an insuperable and indeed conclusive argument against any attempt to abolish the Court of Military Appeals on the ground that it is unnecessary. The country is simply not going back to any system of military justice which lacks that safeguard.

However much anyone may disagree with particular decisions of the Court of Military Appeals, or with whole lines of their decisions, the fact that it is a permanent institution along with much of the UCMJ is becoming more generally recognized. For instance, the Army has started a law officer program, under which specially qualified JAs will serve as law officers in particular areas, riding circuit as it were, for all GCMs within the command. That program, under which legal rulings are going to be free from any influence, conscious or unconscious, from the staff JA's office, is therefore a very helpful and progressive development. It is also inevitable that the law officer will have more power and stature over the years. The next step will be to have him sit at the head of the courtroom in a high judge's chair, wearing a robe, with the rest of the court in a sort of jury box. The former president, by that title or otherwise, will become a mere foreman, and while this final change will cause the old-line iron-pants JAs to weep sadly into their beer once more, it is bound to come sooner or later, most probably sooner.

Justice with a different set of values

My own doubts—and of course these are only individual views—are far more fundamental. I thought in 1950, and despite some forensic success under its provisions since then, I still think in 1958 that the basic misconception of the Code is that it sought to set up a system of military justice that paralleled the system of civilian justice, in utter disregard of the fundamental fact that a military society differs from a civilian one, and that the objects of military law are therefore different from those of civilian criminal law.

Here is what General Sherman said in 1879—and bear in mind that he was a practicing lawyer long before he became a general:

> The object of the civil law is to secure to every human being in a community all the liberty, security and happiness possible, consistent with the safety of all. The object of military law is to govern armies composed of strong men, so as to be capable of exercising the largest measure of force at the will of the nation.
>
> These objects are as wide apart as the poles, and each requires its own separate system of laws—statute and common. "An Army is a collection of armed men obliged to obey one man." Every enactment, every change of rule which impairs this principle weakens the army, impairs its value, and defeats the very object of its existence. All the traditions of civilian lawyers are antagonistic to this vital principle, and military men must meet them on the threshold of discussion, else armies will become demoralized by engrafting on our code their deductions from civil practice.

The drafters of the Uniform Code ignored these fundamentals, no doubt because they were ignorant of them. I have said that they did well to provide an ultimate civilian court to protect against gross unfairness. I think their basic mistakes were, first, to extend the jurisdiction of military courts even more widely than had ever been done before; second, to institute the completely adversary system of trial; and third, to take the administration of military justice out of the hands of the service at large. Each of those mistakes was a reflection of their fundamental error of not perceiving the special needs of the military community.

Military jurisdiction curtailed

First. The earlier American military codes were greatly limited as to offenses. They did not seek to cover all criminality by soldiers, but only such conduct as affected the Army. As late as 1833 for instance, the trial

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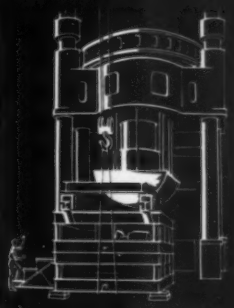

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of a soldier for a theft committed off the reservation was disapproved by the Commanding General of the Army (GO 22 of 1833). Under the NATO and NATO-type arrangements abroad, and under the Defense-Justice agreement at home, military jurisdiction in practice has now been sharply curtailed. I suggest that the entire jurisdiction pattern should be restudied on the view that military jurisdiction has no justification apart from military needs, that it should not parallel civilian jurisdiction, and that, when limited, it has a better chance of being permitted to proceed more summarily than now.

Many years ago, Maitland, the greatest of legal historians, wrote of "the verdict of long existence, that an army cannot be kept together if its discipline is left to the ordinary common law;" and again, "that a standing army could only be kept together by more stringent rules and more summary procedure than those of the ordinary law and the ordinary courts." We are very close, in the UCMJ, to the ordinary criminal law and procedure of our ordinary criminal courts. But the only chance of reversing the trend, of making military procedure more summary, and hence more effective as a disciplinary sanction, lies in narrowing its scope to those offenses that have a demonstrable bearing on the military effectiveness of the forces.

Return to a more paternalistic system

SECOND. In the earlier military practice, with its narrow range of offenses, the court-martial was not a court of general criminal jurisdiction. It was accordingly regarded as a "court of honor," and lawyers were not permitted to speak before it.

Here are passages from the action disapproving, in 1809, the proceedings of a GCM because the accused's counsel questioned witnesses and addressed the court:

> Were Courts Martial thrown open to the Bar, the officers of the Army would be compelled to direct their attention from the military service & the Art of War, to the study of the law.
>
> No one will deny to a prisoner, the aid of Counsel who may suggest Questions or objections to him, to prepare his defence in writing—but he is not to open his mouth in Court.

No one would suggest that we return to that standard, which has not been followed for a century at least. It does seem to me, however, that the full flowering of the adversary system in military trials, far from protecting the accused, actually hurts him, and that it is not conducive to furthering discipline in the armed forces.

Under the old Articles of War, the rule was that omissions by counsel did not bind the accused, essentially because counsel was usually a layman. Today, many, many decisions turn on waivers by counsel, who, though not technically laymen, are in most instances lieutenants just out of law school. I am aware of the vice inherent in generalizations, but I can only say that most of the cases I have dealt with in the last few years have been poorly tried—on both sides. It seems to me unrealistic to apply to such trials the rigid standards of waiver that civilian courts apply in their criminal cases, most of which are tried by much more experienced counsel. If there were some lessening of the combative techniques that the young lieutenants now apply, influenced no doubt by what they see nightly on the TV screen, it does seem to me that trial counsel would be less inclined to emulate Mr. District Attorney and might well feel that he owed a duty other than winning at all costs. I suggest that the discipline of the services would be enhanced rather than impaired if there were less need on the part of the prosecution to counter the imaginative tactics of the budding Perry Masons defending hopeless AWOL and barracks larceny cases.

Personally I have the uneasy feeling, as I read current records of trial, that hammer-and-tongs forensic battles by untrained forensic battlers are not the solution for any ills that have beset military law in the past. We should restudy the Code to see whether a return to a more paternalistic system would not make it more workable, and more conducive to discipline, without of course any sacrifice of fundamental fairness.

THIRD. The traditional military code was a body of law administered by the service at large and therefore familiar to the service at large. After 1920, there were refinements not generally known, but the basic outlines of the system and of its procedure were still familiar. Now we have an excessively detailed system that is a closed mystery to the ordinary officer. One result is that those opinions of the CMA that need most to be communicated to the layman, particularly to commanding officers, and most particularly to commanding officers exercising GCM jurisdiction—which is to say, the opinions dealing with standards of basic fairness—those opinions seem never to reach the persons most affected.

Under the old system, the services disciplined themselves. They investigated their cases, then tried them. Today the entire investigatory process, in virtually every routine case, is in the hands of the always inadequate and frequently vicious CID, ONI, and OSI; and the trial of cases has been almost wholly handed over to the lawyers, and so has but little impact on the thinking of the service at large.

It is difficult to resist the conclusion that we would have better disciplined services if they removed the administration of military justice from the cops and the lawyers, and returned to the traditional process of self-administered discipline, with simplified procedure, and with only sufficient legal participation to eliminate patently inadmissible evidence and to insure the observance of basic standards of decency and fair play. Then military law would not be, as unfortunately it seems to be now, something foreign to the consciousness of the average conscientious officer.

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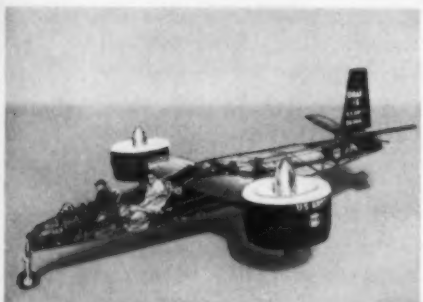

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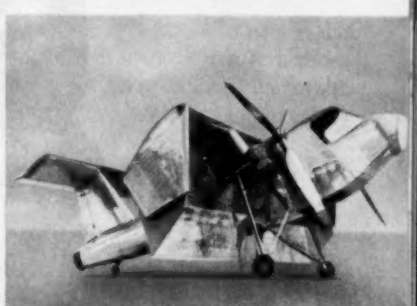

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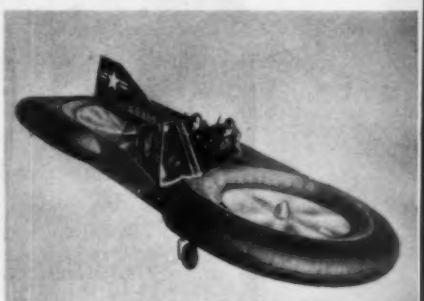

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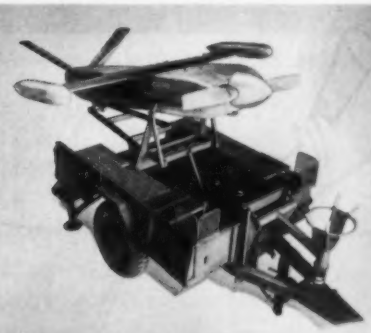

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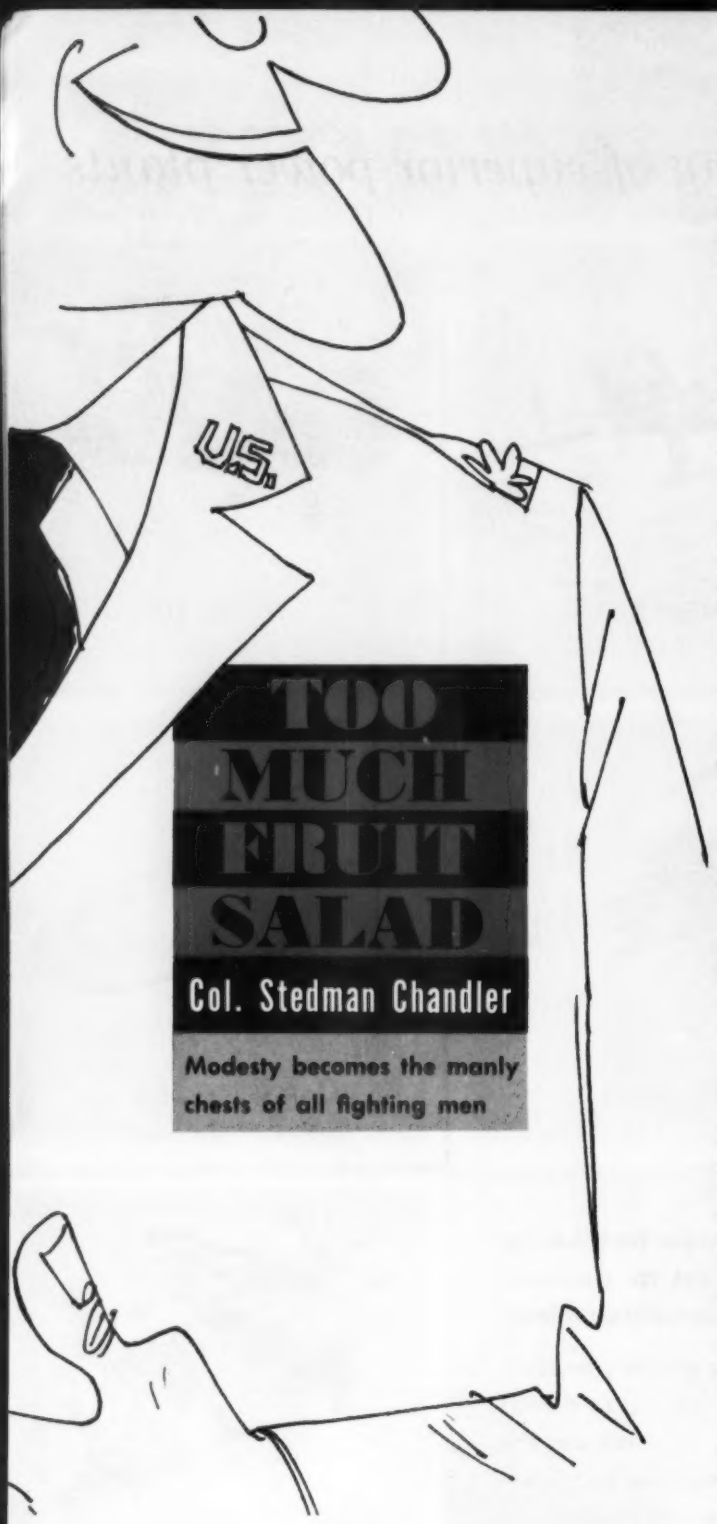

TOO MUCH FRUIT SALAD

Col. Stedman Chandler

Modesty becomes the manly chests of all fighting men

THE Army's system of awarding decorations, if it is a system, has long bothered me, but it has not seemed important enough to sound off about until a Cerebration [March 1958] suddenly riled my elderly bile. Now that I am divorced from the Army and too old, broken down and crotchety to be of much further interest to it, I'll zero in on this ribbon-happy essay which seems to indicate that much is wrong with our whole national pattern.

The Cerebration advocated "a more liberal policy of awarding decorations"—more medals, and especially more medals for peacetime or (as the article calls it) "Cold War conditions."

I think we should have fewer medals, and more officers who understand what they stand for and how to award them. This is not hard to prove. The Cerebration kills its own argument when it says: "Only the Legion of Merit and Commendation Ribbon with Metal Pendant appear to be within reach of other officers and enlisted men" (that is, other than high-ranking officers during peacetime); for the high-rankers there is the Distinguished Service Medal.

What can a man do in peacetime for which one of those three awards wouldn't be sufficient? I can remember when there was no Legion of Merit, no Bronze Star, no Commendation Ribbon, and when the CR, incidentally, had no Metal Pendant. It would seem that the noncombatants are pretty well taken care of, especially since the Bronze Star was downgraded during World War II by being split into "valor" and "meritorious" awards and, later, by being awarded to almost anyone who asked for it. I think it's a very pretty medal and ribbon, but it was so cheapened by over-awarding that its greatest value lay in the five points it contributed toward separation.

As a recipient of awards I have no squawk (I emerged from World War II not only satisfied but pleasantly surprised), but as a commander, one of whose responsibilities was awarding them, I have plenty.

DURING World War I we had too few decorations: the Medal of Honor, the Distinguished Service Cross, and the Silver Star Citation (no medal involved). An AEF veteran who sported the DSC and the Croix de Guerre was rolling in glory. Besides, most people knew what they meant and *knew* he was rolling in glory.

The average American cannot identify ribbons. Soon after I returned from ETO, two Regular Army colonels, on different occasions and in all seriousness, asked what the Silver Star ribbon stood for. And, during all the years since, only one civilian ever identified either the ribbon or the lapel miniature. That was a girl who, I learned later, had been awarded the Bronze Star for valor as an Army nurse.

American civilians, unfortunately, judge ribbons by their acreage. And they think, generally speaking, that the prettiest are the highest ones. In large part this is the Army's fault. After VE-day, particularly, there was a deluge of foreign decorations, most of them "awarded" at cocktail parties or other mutual admiration binges. The blouses of our senior officers (and many juniors too) were plastered with color, from pocket pleat to shoulder strap. Many persons quickly came to regard this as a vulgar display, which it undoubtedly is, and lost respect for the whole system. A friend of mine who got caught in this windfall once showed me his closet-hanging uniform and said, with honesty: "I'm ashamed to wear my class A. I not only don't know what I got all this garbage *for*, I actually don't know what half of them *are*!" You can't expect civilians to recognize ribbons which the owner himself can't explain.

So, those still around on VE-day picked up three or four rows or more of foreign loot, often awarded on a

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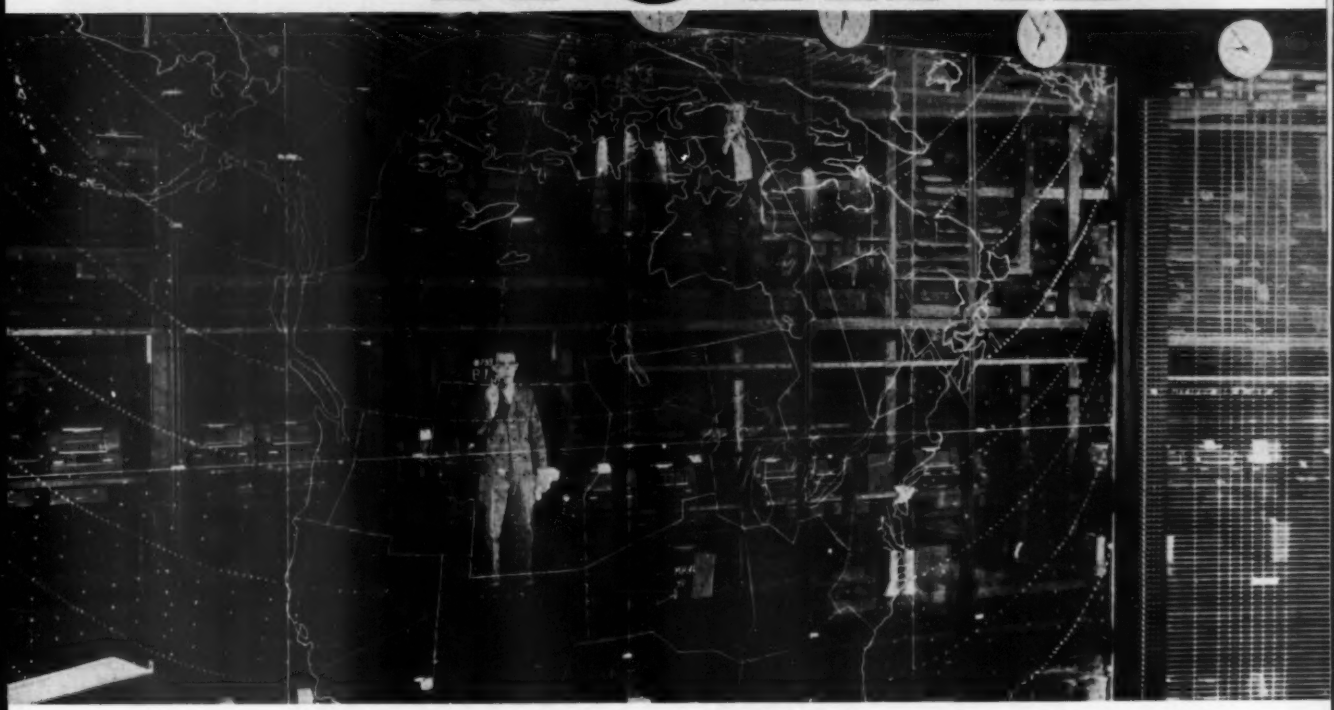

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Like a huge "bumper" wrapped around the North American continent and reaching down along both the Atlantic and Pacific shores, the North American Air Defense Command (NORAD) has been created for operational control of air defense units of the Army, Navy and Air Force of the U.S. and the RCAF Air Defense Command of Canada. Its field includes the vast area between the southern border of the United States and the northernmost limits of Canada and Alaska. Under the functional control of NORAD will be BMEWS (Ballistic Missile Early Warning System) and SAGE (Semi-Automatic Ground Control Environment) for the defense of specified sectors. In addition to its responsibility as prime contractor for BMEWS, the Radio Corporation of America is working on other important electronic assignments for NORAD.

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you-take-this-one-I'll-take-that-one basis. Meanwhile, their juniors sat around headquarters writing one another citations for clusters to the Bronze Star, while rear-area soldiers set up a lusty gray market in which medals of various brands could be bought for from five dollars to a hundred.

Many times combat people of all ranks found their own citations knocked down a notch to make way for the foregoing. After all, there was a "quota system"—the curse of the whole program. We'll get back to that.

The basic trouble was lack of forethought and of subsequent indoctrination. When I first went into combat not one officer in the entire landing force had been instructed in the purpose of decorations or how and when to award them. Most didn't even know the various decorations.

I remember one medic (a fine, sincere surgeon in civilian life) who, after the first fight, put in his entire detachment for the Distinguished Service Medal. In sad contrast, only one soldier, during the whole operation, was awarded the Medal of Honor, although several definitely earned it.

That's my first point: lack of understanding.

MY second point is second-guessing by rear-echelon boards. Of course, if commanders were properly instructed, their recommendations would earn more respect. Even so, the boards that process the recommendations always have the last say. If the board doesn't like the way the citation is written, it is either ignored or knocked down a notch. If the "quota" is out of kilter, the same thing happens. The people on the board seem to feel that they, from their ivory towers, can better judge what happened on the battlefield than those who were there.

A battalion commander in Normandy told me: "I'm through with the whole racket. I had a fellow who earned the Silver Star. I wrote him up for it. The rear-area boys knocked it down to Bronze Star and I got mad and phoned them. They said, 'Hell, if you want him to have the Silver Star, write him up for the Silver Star.' So I did. This time it came back raised to the DSC. Damn it, the man earned the Silver Star, neither the Bronze *nor* the DSC! So I gave up. To hell with it!" He wasn't alone; lots of commanders said to hell with it; you can't outguess the boards.

The enforced award is my third gripe. Former combat battalion commanders, execs and S3s will back me up here. How many times did Division phone you and say: "You will write up Colonel Ducrot for a cluster to his DSC for the period 1 to 15 April." You checked the journal for that period and found you spent most of it in a rest area, and the enemy didn't even make faces at you. So you phoned back and explained. Then Division said: "Look, Charlie, that's what Corps wants. Do it!" Those *always* went through.

My fourth point concerns the "quota system": *x* per cent to get the DSC, *y* per cent the Silver Star, *z* per cent the Bronze Star. How, I ask, can you reward bravery, or any other kind of service, on a percentage basis? If only one man in an outfit is brave enough to merit the MH, then only one man is that brave; but if twenty are that brave, then twenty men are, and the outfit (and higher headquarters) should be damned proud of it. But no: the quota is such and such. *You* figure out who gets what, but it will be done on that basis: so many DSC, so many Silvers, so many Bronzes. Many a coin was flipped as a result of this cockeyed system. So Private Jones, if only he realized, could say, "Well, I'm really a Medal of Honor man, but the coin fell tails."

The solutions don't seem to be very obscure:

(1) Train officers in the meaning of decorations and how and when to award them.

(2) Require the members of boards to give more attention to the recommendations they receive. If there's obvious doubt as to their soundness, have the board follow through and find the right answer.

(3) Quit the practice of awarding the DSC to generals who "boldly reconnoiter" a regimental area, and give more consideration to the men who live days on end in the platoon areas.

(4) Abolish the quota system. Award medals to soldiers who earn them, regardless of their number, and deny them to those who don't, regardless of their influence.

(5) Don't grant awards to men for actions which fall within their normal duties, and for which, if they didn't do them, they would be gigged.

(6) Find some way of separating decorations from theater ribbons and lesser awards like badges. For example, combat and high noncombat awards on the left breast, the others on the right. Or separate them by a blank row. If you can't get rid of the acreage, at least let interested people know which acres are fertile and which are fallow.

(7) Instead of devising new ribbons, concentrate on making the many now available more worthwhile, more understandable, and more respected.

I RECALL that in 1945 at a service club my wife clutched my arm and said, "There's a man I admire!" She was looking at a young captain who wore only the Combat Infantryman Badge and the DSC ribbon. Among the human Christmas trees on the dance floor he stood out like a lighthouse.

I still think that captain had the right idea. I still smile at photographs of Zhukov or Goering—or even of some of our own truly distinguished officers—and their salad-sprayed frontages. We Americans, however, don't live in a very modest age and, come to think of it, we aren't a very modest breed.

Maybe the Cerebration was right: have more and better ribbons; there may not be another war for quite a while. But it should be remembered that no one will care but the man who wears them. The public in general doesn't know the MH from a Reserve longevity ribbon. Combat men can identify them, though; they'll go as far as the good ones, and stop. Noncombat men, if they have more, will gloat; if they have fewer, they'll be jealous. And it's still true that a man with a medal will find it good for a cup of coffee—if he also has a dime (in many places today, twelve cents).

Where decorations count is on your record, in your permanent 201. That record should be honest, for like all your other records, it will be audited on Judgment Day.

Col. Stedman Chandler, a San Francisco advertising man, entered the Army Reserve in 1925. During World War II he served on Attu with the 7th Infantry Division, in Normandy with the 9th and through France and Germany with the 90th, finishing as Lieutenant Colonel. He was at various times company commander, battalion and combat-team exec, antitank officer, S3, and battalion commander.

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MEASURING RADIATION

- **The difference between radiological monitoring and surveying**
- **The mission of the radiological center**

Captain Stanley W. Fair

A Chemical Corps captain surveys an area near where an atomic test shot had been fired, at the Atomic Proving Ground in Nevada

EXPERIENCE gained from recent field exercises, the findings of combat development study projects, and discussions at conferences on nuclear warfare, indicate that changes are needed in our concepts of radiological survey.

Radiological survey (a responsibility of the chemical officer under the general staff supervision of G2) is the determination of the degree and extent of radioactivity in an area by survey teams using special instruments. The radiological center (RADC), an element of the chemical section, plans these surveys and processes and evaluates the data acquired. Commanders at all levels are responsible for training their own survey personnel.

There are two methods of surveying. The *primary* method is centrally controlled by the RADC; the *alternate* method is decentralized, being directed through command channels and controlled by a subordinate unit. Aerial survey, controlled by the RADC, is always a primary method, while ground survey may be primary or alternate.

Helicopter or fixed-wing aircraft cover areas that have dose rates dangerous to ground parties, along lines of communication, over areas being considered for relocating units and installations, and when a speedy survey is vital. The aircraft flies at the lowest possible constant altitude and speed, along designated course legs, between easily identifiable check points. Readings are taken at equally spaced periods, and are radioed directly to the RADC; readings may also be recorded and delivered to the RADC after the survey.

Ground surveys can be made on foot or from vehicles. In open areas, the soldier holds the survey meter about three feet above the earth. The

Captain Stanley D. Fair, *Chemical Corps,* when he wrote this article was Nuclear Effects Engineer for the Radiological Warfare Division, USA Chemical Corps Field Requirements Agency, at Fort McClellan, Ala.

NEW SEEING EYE FOR ARMY AVIATION

The Pentomic Army will soon have targets spotted and photographed by a new high speed observation airplane designed and built by Grumman. The YAO-1 Mohawk, powered by twin turboprops, incorporates maximum passive defense and ejection-seat pilot safety. Highly maneuverable for low level missions, the Mohawk's bubble type canopy affords the two man crew excellent visibility in all directions.

The Mohawk is a STOL type airplane (short take-off and landing) and can be operated from unimproved fields, even when covered with snow or mud. The Grumman YAO-1 Mohawk will greatly increase the role of Army Aviation in target acquisition and observation.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
Bethpage · Long Island · New York

number of readings depends upon the time available, the accuracy required, and the area's dose rates. Near a vehicle or a fortification, its shielding correction factor must be determined by taking several readings at least twenty feet away. All readings transmitted must bear the correction factor.

Whether on foot or mounted, ground survey parties follow routes of operational interest and report dose rate, location and time of reading, as directed, at well-defined terrain features; at points of operational interest; or at measured distances along the route at which designated dose rates are to be reported. Readings are transmitted to the RADC or to the unit controlling the survey, either as they are obtained or when the survey is completed.

During a ground survey by the alternate method, the data obtained must be sent as directly as possible to the RADC, no screening, consolidating, or evaluating being done by intermediate units.

No unit of the U. S. Army has the primary mission of performing radiological surveys. We must develop such a survey capability with a minimum of change in existing units, and in such a way that their efficiency in performing their main missions will be least affected.

The number of ground survey parties needed at any one time depends upon the tactical or logistical situation, the terrain, the time available, the nature of the detail desired, and other factors that may arise. The number is determined by the RADC or the unit controlling the survey. The number of meters needed by a unit or installation depends upon whether monitoring is needed in addition to survey.

Monitoring means the use of RADIAC (radioactivity detection, identification and computation) instruments to determine the presence of radiation among personnel, supplies, equipment, and areas. Our discussion is limited to monitoring of areas, in order to compare it with survey operations.

Detection of radioactivity at a single point has little operational significance since it concerns only the point of reading. Because of uneven distribution of contamination and the shielding effects of terrain or man-made structures, considerable point-to-point variation can be expected. However, when a number of individual measurements are considered together, they can give a picture of the radiation pattern over an entire area. Sometimes monitoring provides radiation data so as to preclude a survey.

Commanders at all levels are responsible for radiological monitoring. It is included in normal reconnaissance and intelligence activities, and may be implemented on the unit commander's order or that of a higher headquarters, or pursuant to a unit's SOP. A unit's ability to monitor depends upon the availability and use of RADIAC instruments, and trained soldiers.

Continuous monitoring by all units begins at the moment the fallout warning is received, at H minus 5 when the strike is by friendly forces, during all tactical and administrative moves, and when any nuclear strike is observed or reported.

Periodic monitoring—the checking of areas for radioactivity—is routine.

Special monitoring is by reconnaissance units, by reconnaissance patrols, and by intelligence flights over distant or unoccupied areas.

Aerial monitoring can be a separate mission or in conjunction with other aerial reconnaissances. The objective is to determine presence or absence of significant *levels* of contamination, not to determine accurate dose rates on the ground. Readings are taken at the lowest practicable altitude, and at ground level only when ordered. If his information is to be of value, the monitor records altitude in addition to dose rate, location, and time.

Monitoring can yield valuable information long before a survey is made, and its importance lies in the immediate value to the user of the information. Monitoring reports are *initial, subsequent,* or *summary.*

At Camp Desert Rock, a RADIAC monitor checks the radiation level of an officer who had been in a contaminated area

The initial contact with a radioactive hazard is reported through command channels with FLASH precedence, by the speediest means, and these reports are neither screened nor consolidated at intermediate headquarters.

Monitoring reports that follow the report of initial contact are submitted in accordance with the unit's SOP. Readings must be taken periodically or at dose-rate intervals, or a combination of them. Reports must include available dosimeter readings. Subsequent reports are consolidated at intermediate headquarters, where they are screened so that only those readings from subordinate units which differ significantly from unit to unit are reported to higher headquarters. These reports continue to flow until a decrease in dose rate is noted, at which time a summary report is rendered.

The summary report must indicate that it *is* the summary report. It reports two to four readings taken throughout the unit's area and is forwarded without screening to the appropriate RADC. Although this is the summary report, monitoring continues in accordance with the unit's SOP, its orders, or request by RADC. The RADC and the S2 of each subordinate unit plot the information from summary reports and evaluate the situation. If enough data are available, a radiological survey will not be required. Units on the move do not furnish a summary report until the dose rate drops below one roentgen per hour.

We see that radiological contamination information can be obtained either by monitoring *or* by survey. But the sequence should be: monitoring first, survey second, if necessary. Monitoring reports can provide information of initial contact, of the build-up of fallout, and of the effect of contamination. Survey supplements the monitoring data, giving more details.

Monitoring can be effective only if units have enough instruments and their personnel are trained to use them and to evaluate the data they register. In our Pentomic divisions the number of survey meters should be increased by a factor of about three; the S2 and S3 of battle groups and battalions should know how to interpret data; the RADC should be able to evaluate monitoring and survey data, and to direct and control surveys.

Focalized Facilities

FOR MAJOR WEAPONS SYSTEMS

• RESEARCH • DEVELOPMENT • MANAGEMENT

Providing a new systems approach that follows through from initial plan to final production, the Bendix Systems Division serves as the *focal point* for the twenty-five strategically located divisions that constitute the Bendix Aviation Corporation. The new building, designed for engineering and managing of major weapons systems, is adjacent to the Graduate Engineering School of the University of Michigan in Ann Arbor.

This structure and its additions will accommodate a staff of 1,000 including engineers and scientists who will explore new concepts in communications, guidance and control, infrared, data processing, aerodynamics and propulsion, radar, acoustics, and countermeasures.

Weapons systems now being developed by this Bendix division include air defense network improvements, global weather reconnaissance, special radar applications for detecting ballistic missiles and low-flying aircraft, underwater surveillance, mission and traffic control, and a supersonic aerial target system for testing operational capabilities of the latest weapons.

Bendix Systems Division

ANN ARBOR, MICHIGAN

Bendix AVIATION CORPORATION

A is for ARMY

(*Continued from page 18*)

So too with all other Army missiles. So too with the Army's ground and air vehicles: the Mechanical Mule, the new T113 aluminum personnel carrier, the new ¾-ton truck, the H-37 helicopter, and the flying cranes and flying platforms that are rapidly approaching operational status.

All these machines and weapons are designed—let us repeat—to help the Army perform its mission of sustained ground combat.

SUSTAINED ground combat's heaviest demands are on the Army's fighting men, and these the Army never forgets. The training, education and indoctrination of its soldiers are ever the Army's biggest task. During 1958 it accomplished much in this area that is of importance to the security of the United States.

It gave 280,000 men of the Active Army, the Army National Guard and Army Reserve sixteen weeks of basic training.

Some 14,000 officers will be graduated from ROTC and 1,000 from the Officer Candidate School in Fiscal Year 1959.

It operated thirty major schools which offered 642 courses to 147,000 resident students, plus 160,000 enrolled in extension courses.

Sixty per cent of the Active Army's enlisted men attended specialist courses beyond the 16-week basic course.

For one of the Army's basic achievements large credit must go to the Congress which permitted the Army to eliminate the inapt and unfit at the induction center. This was, General Bruce Clarke of CONARC says, "a very important breakthrough." It means that the Army can now speed up its training and confidently anticipate that the time it takes to make a division battle-ready will be very materially reduced from the nine to twelve months it took during World War II. Some officers engaged in the training task of the Army believe it can be cut as much as forty or fifty per cent.

AMONG the not-to-be-overlooked achievements of the Army in 1958 were the advances made by CONARC's Combat Development Experimentation Center and the Army's schools in fitting new weapons, new organizations and new tactics together into a purposeful system.

It was a year in which the military services got a long due pay raise. Congress and the Administration at last took action along the lines of the Cordiner Committee's report and a pay system that has some faults but was a definite advancement was adopted.

It was a year in which the defense establishment was again reorganized. The new organization should make for better direction of the nation's war-waging and war-deterring forces. At the same time the separate identities of the individual services were preserved.

The Advanced Research Projects Agency organized in the Department of Defense can, if wisely directed and operated, bring greater efficiency to the military services' efforts in missile development and production.

The organization of the National Aeronautics and Space Administration may do the same for the nation's efforts to solve the mysteries of outer space.

All these add up to the conclusion that 1958 has been a good year for the U. S. Army—a year of achievement and a year of building for the future.

THE achievements were solid. But there are weak muscles that must be toned and strengthened.

Active Army strength is marginal at best. A forced reduction to 870,000 was fortunately discarded, but the nation's commitments are of such an order of magnitude as to make even a million man Army no more than would be needed.

There must be an increase in the rate of production of Army weapons, machines and equipment. At the present rate the Army is not even holding its own. An increase of funds for this purpose is certainly necessary.

Strategic and tactical airlift continues to be disappointing. As the Senate Committee on Armed Forces said in its final report on military construction: "The committee is of the opinion that the airlift capability is most inadequate and cannot understand why the Army, especially, has not sought with great vigor to ensure a capability of moving its troops and equipment by air or if it has requested such, why the Department of Defense has not taken affirmative action.

"Obviously, one requirement is the necessary funds. It has been reported that Army officials calculate the Army should have approximately 100 C-133-type turboprop transports available for such use. . . ."

THESE weaknesses suggest that the achievements were not easily come by. To get where it is today, the Army has had to struggle against ignorance, misunderstanding, complacency and that old, old enemy, the idea that military security can be bought cheaply.

If you think back to the situation that existed four or five years ago, the emergence of STRAC in 1958 (among other Army achievements) becomes rather remarkable. That was the time when the Korean War was dragging to its dreary and inconclusive end and when the "new look" was promising a bigger bang for the taxpayer's buck. The two events were not unrelated. In some respects they were cause and effect. If it was impossible to wage a conventional war to a conclusive victory from fear of starting a nuclear war, why fight them? Why not instead threaten anyone who starts a war—big or little—with instant massive retalia-

U. S. ARMY PHOTO

STRAC - free world minutemen

STRAC — Strategic Army Corps — is the U. S. Army's new combat-ready force designed to meet the initial requirements of limited war or to provide reinforcements to overseas troops in a general war. Its mission is to be operationally ready on a moment's notice to move by air and sea to potential trouble spots anywhere in the world.

Four famous divisions of your modern Army form this highly specialized team — the 1st and 4th Infantry Divisions and the 82nd and 101st Airborne Divisions. Their capabilities are well recorded beside such names as Tunisia, Sicily, Salerno, Anzio, Normandy and Bastogne. Today, these men show their dedication to the preservation of world peace by their readiness to help stop aggressions — anywhere, any time.

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tion? It would, it was argued, deter minor or localized aggression and it would be cheaper. Only trouble with the theory was that it was unworkable from the day the enemy had the power to respond with his own nuclear weapons. Massive retaliation simply wasn't believable as an instrument to be used against local aggression. A bigger bang for a buck was no bargain since it bought less military security rather than more.

The struggle against the delusion of defense-on-the-cheap was long and difficult, and unhappily it is not yet over. But progress has been made. Credit for this belongs to a great many persons and organizations. And not the least to the Army itself. A former Chief of Staff, General Matthew B. Ridgway, labored mightily and endured agonizing frustrations. So too have our present Chief of Staff and other uniformed members of the Army. Not all of Secretary of the Army Brucker's contributions can be pinpointed, and none can be discounted. Indeed, they are considerable. With constant good humor and unflagging enthusiasm he has pleaded the Army's case as the good lawyer and public servant he is. Perhaps the greatest tribute we can at this time pay this truly remarkable Secretary of the Army is to quote from that advocate of big weapons, *Air Force* magazine, which in its October issue admiringly described Mr. Brucker as an "astoundingly successful" Secretary of the Army.

Outside of the Army, opponents of the bigger-bang-for-a-buck philosophy included such influential persons and groups as Dr. Henry Kissinger of Harvard, the Rockefeller group and a growing number of journalists who write on military subjects. We hope we don't sound boastful if we suggest that the Association of the U. S. Army through its ninety-one chapters, its Annual Meeting and other activities, and through this magazine, has contributed to the cause.

IT is a non-ending struggle embracing all of us: from the private in basic training—who may say he couldn't care less—to those who have served the Nation long and well and who are no longer in uniform—they couldn't care less, either, but they do and make their concern known.

The past year has been a good one for the Army. Next year will be better. That kind of optimism is as old as the U. S. Army and as American as the U. S. Army. So let's get on with it—"any kind, any place, any time."

FRONT AND CENTER

(Continued from page 17)

and Air Force. The technological breakthroughs in prospect are in the aerial vehicles, but with more funds, specific items of equipment and weapons for use with the vehicles could be developed fast. For example experimental aerial combat reconnaissance units have been outfitting their craft with machine guns, rockets and sighting devices developed for Navy and Air Force fighter and bomber aircraft. This kind of baling wire experimentation has its place, but it doesn't mean much unless it leads to something better. From what General Cairns told an Aviation Writers Association luncheon in Washington recently, it is clear that the time has come to get something better.

* * *

However, there's some concern among Army officers engaged in the research and development of air vehicles for the Army that the new National Aeronautics and Space Administration may concentrate so much of its efforts on space that its interest in the development of aircraft that fly slower and lower will lag. Backing this up is the opinion of *Aviation Week* which has observed that "some of the valuable assets and working spark that made NACA such a successful research and development organization have been lost."

* * *

Last month we mentioned that six midshipmen from Annapolis had earned paratrooper wings at Fort Bragg last summer. Since then we have learned that 38 cadets from the Air Force Academy earned their jump wings this summer by graduating from the three-week jump course at Fort Benning.

Also at Fort Benning, Crain Hall, where some ten million meals were served officers attending the Infantry School between 1921 and 1958, was closed on 9 September. Originally known as Biglerville Bachelors' Mess, the dining hall was renamed for TSgt. Morris E. Crain, a World War II Medal of Honor winner, in 1947. Among the infantrymen who dined in the hall were Marshall, Eisenhower and Bradley.

* * *

Exercise White Cloud at Fort Bragg late in October will give participants

General Officer Shifts

Lt. Gen. GUY S. MELOY to Fourth Army . . . Maj. Gen. PAUL A. DISNEY to Allied Forces, Central Europe . . . Maj. Gen. PETER C. HAINS, III, to JUSMAG, Thailand . . . Maj. Gen. ROY E. LINDQUIST to MAAG, Iran . . . Maj. Gen. RICHARD C. PARTRIDGE to First Army . . . Maj. Gen. FRANK A. TOBEY to Chief of Chaplains . . . Brig. Gen. CREIGHTON W. ABRAMS, JR., to USAREUR . . . Brig. Gen. EDWARD A. BROWN, JR., to EUCOM . . . Brig. Gen. WILLIAM J. ELY to OCRD . . . Brig. Gen. FREDERICK O. HARTEL to OASD . . . Brig. Gen. HOWARD M. HOBSON to PMGC . . . Brig. Gen. KENNETH A. MCCRIMMON to 1st Logistical Command . . . Brig. Gen. DAVID P. SCHORR, JR., to Eighth Army . . . Brig. Gen. FREDERICK G. WAITE to Eighth Army . . . Brig. Gen. ROY N. WALKER to Recruiting Publicity Center . . . Brig. Gen. WILLIAM R. WOODWARD to Eighth Army.

Retirements. Maj. Gen. CHARLES G. HOLLE . . . Maj. Gen. HENRY R. MCKENZIE . . . Maj. Gen. PATRICK J. RYAN . . . Brig. Gen. ROBERT L. COOK . . . Brig. Gen. L. HOLMES GINN, JR. . . . Brig. Gen. ROGER G. PRENTISS, JR.

their first taste of STRAC-type operations. The aggressor will not be engaged directly but through "brush-fire" war tactics of subversion, rebel uprisings and infiltration by satellite-organized "volunteers."

* * *

The Army is encouraging officer transfers to fill significant shortages in various branches from overstrength grades in other branches. The Adjutant General Corps, Artillery, and Chemical Corps are short majors, captains and first lieutenants. Corps of Engineers needs lieutenant colonels, majors and captains. Finance Corps wants lieutenant colonels, majors and first lieutenants. There are spots in the Military Police for majors and first lieutenants. Ordnance and Signal Corps are looking for all grades from first lieutenant through colonel. As set forth in Circular 614-3, there are no minimum qualifications for consideration in the Signal Corps or Military Police. Adjutant General Corps prefers officers with at least two years' experience in combat arms, and an educational background indicative of potential development. Artillery requires an acceptable military record and an adequate mathematical background. Chemical Corps requires a Bachelor's degree or at least two years of college in physical or natural science, mathematics, chemical, mechanical or industrial engineering, combined with appropriate practical experience. Corps of Engineers requirements are Bachelor of Science degree or at least two years of college in engineering or physical sciences plus practical engineering experience. In addition, applicants must have had at least two years with a combat arm and physical qualifications for combat duty.

* * *

Representatives of the defense establishment attended the Thirteenth Annual Tripartite Conference in September in Canada to discuss chemical, biological, and radiological defense. The annual meeting, held by the U. S., United Kingdom and Canada, serves to exchange technical and scientific information and plays an important part in standardization of equipment of the three nations.

* * *

Three Army newspapers have won the DD Newspaper Award Certificate of Merit in three different categories for the second quarter of 1958. The winners were: the *Belvoir Castle*, U. S.

ANNUAL CIVILIAN AIDES CONFERENCE

The Secretary of the Army's sixty-one civilian aides, representing every state and the Territory of Hawaii, are appointed for two-year terms to represent the Army in interpreting Army policies and doctrines to their home communities. They also advise the Secretary of the Army and the Chief of Staff on matters of mutual interest to the Army and the public.

Last month they met, as is the custom each year, with the Secretary of the Army and other Army leaders. The meeting this year was at the Army Infantry School, Fort Benning, and the theme of the conference was "The U. S. Army: A Modernized Fighting Team." The conferees were also airlifted to Redstone Arsenal, Huntsville, Ala., where they observed demonstrations and were briefed on the Army's missile program.

The business of the three-day session was conducted in rotating group conferences. Conferees were divided into three groups and rotated on an hourly basis among conference panels led by Secretary Brucker, Under Secretary Milton, and General Taylor. With Assistant Secretaries, Deputy Chiefs of Staff, and others comprising the panels, the Civilian Aides were given an opportunity to discuss matters of mutual interest to the Army and their communities.

At one evening session the Aides organized and conducted their own discussion period. Mr. Charles L. Stevenson, Civilian Aide for Missouri, organized and moderated the discussion, which touched on many subjects of current interest to both the Army and the Nation. With him on the platform were: Civilian Aides Don Belding, California; Earle Cocke, Jr., Georgia; George M. Davidson, Indiana; and Judge Thomas E. Troland, Connecticut.

Secretary Brucker and Maj. Gen. Paul L. Freeman, Jr., commandant of the Infantry School, inspect Fort Benning's new Doughboy Statue.

Highlights of the demonstrations at Fort Benning were a realistically hard-hitting, rough-and-tumble demonstration of the rugged training given to the Infantry Rangers; an infantry-tank team in the attack, showing the close teamwork between the soldier on the battlefield and tank teams, and the Sky Cavalry's armed helicopters; and an orientation on the Airborne training.

At Redstone the conferees were briefed by Maj. Gen. John B. Medaris, Commander, U. S. Army Ordnance Missile Command, Dr. Wernher von Braun, Dr. Martin Schilling, and others.

Secretary Brucker and Gen. Lyman L. Lemnitzer, Army vice-chief of staff, greet five Medal of Honor winners at a reception during the Conference. From left to right: Maj. Van T. Barfoot, M-Sgt. Wilbur K. Ross, Capt. Charles McGaha, Mr. Brucker, Maj. Robert B. Nett, Capt. Stanley T. Adams, and Gen. Lemnitzer.

ENLISTED MANAGEMENT PROGRAM

THE new Army Enlisted Management Program incorporates two years of Army study and the philosophy of recent military pay legislation. It is designed to provide more attractive career opportunities through a system that evaluates enlisted men against Army-wide standards; provides extra pay for greater proficiency; centralizes assignments for the top-grade noncommissioned officers (similar to that of officers), and offers college training in scientific, technical, and managerial areas at government expense.

Heart of the new management program is its Enlisted Evaluation System. This provides a relative evaluation of the proficiency of each soldier based on written and performance tests, plus a job effectiveness report on the individual by his unit commander. The evaluation will insure the selection of the best-qualified men and women Army-wide for promotion, proficiency pay, and further career development.

One of the major applications of the Enlisted Evaluation System will be the soon-to-be established Proficiency Pay Plan whereby extra pay will be awarded to the most proficient enlisted men as reflected by their proficiency scores. Promotion to grades E-8 and E-9 will be related to the enlisted evaluation system. The Army plans to advance at least 14,500 to these top grades during the next four years.

For those noncommissioned officers who make the Army a career, permanent promotions are now being made for the first time since the outbreak of the Korean War. Permanent grades are given only to men who have proven themselves.

Another aim of the Army Enlisted Management Program is to aid in the development of promising enlisted men by further training and education. In addition to the many service schools available, career soldiers may now also apply for college-level training in technical, scientific, and managerial areas at government expense. Since March 1958, when this opportunity was announced, the Army has received 1,290 applications for college training of which 123 are now in school, or are awaiting admission to 38 accredited colleges during FY 1960. It is expected that approximately 1,200 soldiers will be admitted to college during the next four years under this program.

To insure timely use of the skills and enhance the prestige of top noncommissioned officers, the Army will centralize the assignment of the top grades, E-8 and E-9, in a method somewhat similar to that currently in effect for officers. Permanent changes of station of these noncommissioned officers will be controlled by the Department of the Army.

Part of the new noncommissioned officer career plan is a change in the Army's previous policy that certain enlisted men with twenty years' service could remain indefinitely in the United States. The new policy, based on operational necessity, provides that soldiers will henceforth be subject to overseas assignment until their twenty-seventh year of service. Those already stabilized will retain this prerogative, but special provision is made to insure that men in grades E-8 and E-9 are available for overseas assignment.

The Army will continue its program of separating from the service those soldiers who are unable to handle the complex jobs of today's Army. During the past year, the Army has given early discharges to 70,000 men. The discharge of ineffective men from Army rolls has already resulted in an over-all improvement in the level of training, job performance, behavior, and has caused a major upward trend in voluntary participation in elementary educational courses.

Army Engineer Center, Fort Belvoir, for photo-offset stateside; *Cacti News*, 1st Battle Group, 35th Infantry, Schofield Barracks, for mimeograph overseas; *Cadence*, 1st Battle Group, 22d Infantry, Fort Lewis, for direct-plate multilith. Selection of the winners was made from more than 1,100 newspapers from all services.

* * *

On 11 November the Army Hour will present a special program over the Mutual Network dedicated to the fortieth anniversary of World War I's Armistice. Advanced reviews indicate this will be one of the finest shows produced in the Army Hour series. The program is a tribute to Army veterans of World War I.

* * *

Administrative and operational functions of the U. S. Army Air Defense School at Fort Bliss, Tex., have been coordinated and streamlined and changes in the organizational structure include the redesignation of the Gunnery and Matériel Department as the Low Altitude Missile Department, and the creation of two new missile departments from the over-expanded Guided Missiles Department. The new organization will bring more efficiency to the largest military school in the United States. Some 6,300 students are now in residence, and much larger numbers are expected in the near future.

* * *

Communist China doubled its propaganda broadcasts to Western Europe and Latin America during the first six months of this year, according to the U. S. Information Agency. During the same period, USIA said, total Communist broadcasts to the Arab world increased 17 per cent. The reports also noted a "burst of activity" by Communist clandestine stations which in the past few years have been rather dormant, and pointed out that two clandestine stations—one broadcasting in Turkish and the other in Greek—have gone on the air.

* * *

The Army Medical Service has established a new Research and Development Command for the direction of a world-wide study of preventive medicine and more effective and rapid treatment techniques. Problems related to ionizing radiation, communicable diseases (important to troops overseas), burns and wounds, and physiological and neuropsychiatric problems will be among the Command's studies.

THE MONTH'S CEREBRATIONS

A JOB FOR OFFICERS WHO WANT TO CONTINUE TO MARCH

COLONEL JOHN A. GAVIN

WHY must our Nation lose the services of many experienced, trained and mature officers who, under existing law, must retire after serving twenty to thirty years? Most of these officers are in field grades, and between forty-five and fifty-five. Most of them have had a wide variety of challenging assignments and schooling. The majority find employment in industry or with civilian schools, where they do a highly creditable job because of their inherent ability to handle people. Some prefer to work away from the military and want to shed the uniform for one reason or another. A few elect to just go fishing. There is a very large group of dedicated retired officers, however, who are forced into civilian employment when, in fact, they prefer to continue in some capacity in the Army, Navy, or Air Force.

The nation is the loser, since it gives up men who are at their peak. Under the law, a Regular retired officer may not work for the Government in a Civil Service capacity, or in an agency supported by nonappropriated funds, unless retired for a disability caused by an instrumentality of war, or by Presidential appointment, or Senatorial confirmation. Such persons may not receive more than ten thousand dollars a year in combined retired pay and Civil Service compensation. For example, a colonel with thirty years of service who draws $7,200 annually may not be paid more than $2,800 for a Civil Service job regardless of his rating in that position. The Dual Office Act further aggravates the situation. This legislation prohibits the employment by the Government of a retired Regular Army Officer if his pay or that of the Federal office exceeds $2,500 annually. In general, however, this restriction on compensation does not affect a retired Reserve officer.

I think something can be done to use the services of retired officers, but it will undoubtedly require legislation. What we need is a law which will allow the most competent retired officers of every service to continue serving the armed forces as civilians, without infringing in any way on the rights of Civil Service employees. Here is my proposal.

Many billets in the military services are occupied by active officers which could be filled just as well by retired people: jobs such as the secretaries of branch schools, special services officers, executive officers of technical services depots and similar installations, key spots in the Army-Air Force Exchange Service, and "outer office" executives or secretaries to the many military and civilian agencies within the Department of Defense. These are the types of billets which, under my proposal, could be filled by retired officers. I do not propose that these people be placed in jobs which deal with decisions or policy-making of a military nature. Such actions are more properly the responsibility of active officers. Rather, I suggest that selected retired officers be offered jobs within the military departments which, by their nature, require an extensive professional background but which do not need to be filled by active-duty people.

To insure that only the most competent persons fill these spots, only a retired officer in the upper half (rated on efficiency during his active career) would be eligible for one of them. To be certain he continues to produce, some form of efficiency reporting must be instituted. Those who fail to cut the mustard can go back to retirement.

These retired officers would serve as civilians, with salaries, in addition to their retired pay, commensurate with their duties and responsibilities. The scale of combined salaries might range from about six thousand to twelve thousand dollars a year. In effect this would mean that a retired officer accepts a regular, salaried job, and he would vacate it upon reaching the age of sixty-five, when Social Security benefits would begin.

Before placing this scheme into operation, each service would conduct a survey to determine the jobs which could be adequately handled by retired officers, and the salaries to be paid. An agency in each department could be established to administer this class of personnel. For example, in the Army the Office of The Adjutant General would be best qualified to perform this function. OTAG would also screen and hire. Prerequisites for the jobs must be announced, as well as the procedures for applying to fill a vacancy. A basic premise in any consideration of this program is that the plan will not cause any reduction in force among active-duty personnel; the scheme would be implemented gradually, based on normal attrition.

One significant advantage in this plan is the element of continuity it provides the administration of the office or agency to which the retired officer is assigned. Present policies requiring frequent moves by active-duty personnel preclude any semblance of continuity which is so important an asset to any organization. In the proposed system, a newly assigned commander or section head would have the benefit of at least one key person intimately acquainted with past and present management and policies.

This plan would provide jobs for

This department is designed to accommodate the short, pithy and good humored expression of ideas—radical and reactionary, new and old. We pay for all contributions published but you deserve to be put on notice that the rate of payment depends upon the originality of the subject and the quality of writing rather than length. This department is hungry for contributions, so shoot that good idea in . . . today.

those dedicated officers who wish to continue to march with that service to which they gave the best part of their lives. It would place a retired officer at a desk to perform routine but essential tasks, and free an active-duty soldier who can be more profitably utilized in another capacity—with a unit.

In the event of mobilization, the retired officer merely dons the uniform of his service and remains at his job on an active status.

Such a scheme meets three requirements: the retired officer enjoys satisfying and remunerative employment; the military service fills an important job with a competent, experienced officer; and Congressional and public alarm at losing a trained officer with from ten to twenty years of profitable service is allayed.

This program would not interfere in any way with the promotion of active-duty officers since the retired officer is employed as a civilian. It would not infringe on Civil Service rights either, because the positions filled are now normally occupied by active-duty officers, and require the knowledge, experience and training which the encumbent would have gained from long military service.

Lastly, the plan would provide qualified officers to fill some of the gaps that will occur during 1961 to 1963, when the reserve components officers who have been on continuous active duty since 1945 (the so-called "hump") are forced to retire.

Perhaps a major disadvantage in this proposal is the obvious requirement for a retired officer to work under juniors in rank and/or length of service. I believe the mature, dedicated and understanding retired officer will acknowledge and accept the condition graciously. After all, he will be working as a civilian-officer. His inherent sense of discipline and pride of service will not permit him to be shortsighted in this regard.

It is also possible that a retired officer in such a job may adopt a "stack arms" attitude. To circumvent this practice the program should provide for periodic efficiency reports, screening, and selecting deadwood for elimination.

The benefits to the services in this proposal far outweigh any stated or implied disadvantages. The element of continuity in the job, during both peace and war, is overriding. Top retired officers will be in spots where they can do the most good for the national defense. We will be utilizing the training, the schooling, the grass-roots experience and the brains of honored retired officers. The Government will profit by getting more for its money.

I suggest that the services study the desirability of adopting such a program, and if it is found feasible, that legislation be introduced to implement it.

Colonel John A. Gavin, Infantry, *is a 1932 graduate of West Point. He is now Senior Army Adviser to the Hawaii National Guard.*

REVISE ARTICLE 15

SERGEANT BEN MOSKOWITZ

The authority of the commander to punish under Article 15 is an old established custom, and no one questions it. I sometimes wonder, though, if some commanders don't question the value of such punishments. In the main, it is very effective, especially among the lower enlisted grades, where infractions are inclined to be most frequent. It provides the commander with an immediate, understandable, and fair means of correcting fractious soldiers. But through the years a number of faults have attached themselves, like barnacles, that are not products of the Article itself. When the punitive system was first devised, circumstances in the Army were considerably different from what they are now, and these lent themselves easily to the type of punishment available. All this is changed now, as you shall see.

For example, more and more of our soldiers are married and live off the post. This tends to eliminate or lessen one ordinarily formidable punishment: restriction to limits. You might think that this would be something to reckon with, in the case of a miscreant whose wife is downtown. Actually, it works in reverse. The soldier's wife may be pregnant, and if hubby is on the post with the car (which she can't drive), how does she get to the clinic? What happens when the GI wife in the middle of the night finds her child has a fever while her husband is restricted to limits? The commander, of course, realizes all of these possibilities. Since he may quickly forget his anger, the restriction is soon lifted—if it was ever applied at all—out of compassion or, unfortunately out of sheer necessity.

As for the other punishments, they are, except for one which we'll deal with farther on, rarely if ever meted out in the spirit which was intended. For instance, extra-duty punishment is rarely that. It is supposed to be done after duty hours, which leaves enforcement up to the CQ. So he is placed in charge of two men who are to clean up the orderly room for two hours—a job that one man can do in thirty minutes. What, exactly, does withholding of privileges mean, and how is it enforced? Few of us know, I suspect; fewer still have imposed it.

This brings us to the exception noted before: the privilege of the commander to reduce an enlisted man. Since it amounts to the only real punishment available to a commander, particularly in the case of a noncommissioned officer, it is all too often applied where something else might, in the long run, do considerably better. For instance, a company or battery commander might have a very tight policy on reveille formations: everybody stands them. Ducrot, ordinarily a good Sergeant, misses three in a row; the first because his car broke down; the second because the bus he now uses to replace his car broke down; I don't know about the third; maybe his wife broke down. Anyway, he missed three reveille formations.

Everyone agrees that Sergeant Ducrot has fouled up. His personal life and his car should be better arranged. His actions tend to set a bad example for other men, and if it continues unchecked, quite naturally other people will begin to skip reveille.

So the company or battery commander reports to the battalion commander; the battalion commander writes a letter to Sergeant Ducrot, and after a couple of indorsements he becomes Corporal Ducrot.

What has happened? An ordinarily good soldier has been given what he considers a kick in the slats. First of all, you must admit that under the present promotion curtailment policy, the cumulative monetary loss is way out of proportion to the offense. Secondly, Ducrot realizes, as you must, that he got the same punishment that

was administered to a *real* miscreant who, in a drunken stupor, told the first sergeant what to do with his reveille formation. Thirdly, it probably imposes a severe hardship on his family in the matter of quarters assignment or concurrent travel that they had really nothing to do with. Remember, Corporal Ducrot was, up until now, basically a good soldier, good leadership material—but he did foul up a bit.

So he begins to feel bitter, cast-off. He wonders about the possibility of getting out, but ETS is a long way off; and if he wants out badly enough, he'll foul up again, and a third time, deliberately. Presently he's a candidate for board action; before you know it, he's out of the Army as undesirable. On the face of it, this seems a far-fetched example, but such a one is not altogether unknown in the Army, and that is why I mention it.

What else remained for the battalion commander? Restriction? No, because of the family situation, for example. Withholding of privileges? Hardly. Extra duty? Not for non-commissioned officer.

Strangely enough, Ducrot might have gotten off easier had he elected a court-martial. It might have cost him only money, and in all probability, the worst that might have happened was, as a matter of fact, the only thing that *did* happen under Article 15—the reduction in grade. But a court-martial goes on your record, and no one wants that, no matter what the offense or what the punishment; few, therefore, elect to take their chances in that way.

Which brings us to a revision of Article 15. A summary court officer—a captain—can order a forfeiture of part of Sergeant Ducrot's pay if he is found guilty; but the convening authority, who is his battalion commander, can't do that under Article 15. A revision of the Article to permit exactly that gives the commander a new punishment that in this age, where everything is evaluated in terms of dollars and cents, would tend to have somewhat greater deterrent value without breaking up a soldier's career by a demotion, or ineffectively punishing him with something like extra duty or restriction to limits. The soldier who goes on a payday binge and takes a day AWOL is less likely to do it again if he is light about fifty dollars next payday. Sergeant Ducrot, good soldier though he be, will take better care of the family buggy if he knows it will cost him ten or fifteen bucks for each of those missed reveille formations—and he'll still be a good soldier, doing a good job. As for the drunk who cussed out the first sergeant, in his case, the heavier punishment of reduction in grade might better serve the ends of justice.

Sooner or later, Article 15 will have to be amended to conform to modern living. This may be a good way to start, for it will give the commander considerably more flexibility in imposing punishment than he now has.

Sergeant Ben Moskowitz, now with the 15th Artillery (2d Infantry Division) at Fort Benning, has written several articles for this magazine. His latest was in the September 1957 issue.

WHAT'S AN ATOMIC TARGET? WHAT'S MOBILITY?

CAPTAIN T. J. YANTZ

WE have been told that nuclear warheads will drop like bunches of bananas on the future battlefield. Any important target will be obliterated, so we must not present important targets.

This is oversimplification, but the basic thought is there. What are targets of importance, anyway, and how do we avoid presenting them?

An installation like an army supply depot is a profitable target, so the logisticians have come up with Modern Army Supply System (MASS)—no depots, or at best very small ones. Practically all supplies will come through pipelines. Therefore, no worthwhile target, no resulting atomic blast.

But what will constitute an important target? Will it be a battle group or a company, a platoon or even a squad? Or is the size of the unit only one consideration? Does its type, location, mission, training—yes, even its morale—make a target important? Let's examine a typical combat situation.

For some days Aggressor has been advancing steadily toward our forces across a wide front. Our units are steadying, beginning to dig in along a ridge of hills. The key feature, a hill which dominates the entire terrain, is occupied by one of our infantry companies.

Aggressor faces one of our Pentomic divisions spread over a broad front. Obviously, by capturing this one key feature the enemy jeopardizes our division's entire front. Aggressor's attempts to take this hill are unsuccessful because he uses conventional methods. Obviously, then, he must resort to a nuclear blast against our infantry company in order to speed capture of the hill and thereby turn our division's whole front before it can dig in deep enough.

Here is a situation where a nuclear

weapon is being used against a unit, not because of its size, but because of its location. Suppose this were a platoon, even a squad? Would Aggressor be justified in expending such a weapon?

He would, because in this instance the unit's size is not the determining factor. What is most important to Aggressor is his mission: to continue the advance. In order to do so, he must capture the *hill*, not necessarily eliminate the unit occupying it.

So again I ask: What is a target of importance? We all know that any concentration of troops of battle-group size or larger is a worthwhile nuclear target. But when units disperse, and dig in, the target disappears. If the attacker is to succeed, then any unit obstructing his mission, regardless of its size, is a target of importance and must be destroyed.

Which brings up another important matter—mobility. Our Pentomic field army will be highly mobile, mainly a counterattacking force. It will plug those gaps blasted out by atomic strikes. My next question is: What is mobility?

The book defines mobility as getting from one spot to another, rapidly, with all equipment, ready to fight. But the

mobility we associate with nuclear tactics visualizes use of trucks and tracked vehicles, plus airlift, for short distances. This will require massing our transportation and units within easy range of Aggressor's weapons at loading and unloading points, and at air-landing sites. Since the enemy's mission is to continue his advance, and since obviously the mission of our mobile units is to impede or stop him, they thus become the most dangerous to his success, and now have become the important target.

Therefore, a mobile unit, to be effective, must apply the greatest dispersion. But if too widely dispersed its effectiveness as a counterattacking force is minimized because it might be destroyed piecemeal.

I think the theory of mobility as we visualize it for an atomic war is unsound. Our reserve units—the counterattacking force—should attempt to regain lost areas afoot, or even by bicycle (there's a thought!), with soldiers no closer to one another than fifty yards while advancing to the disputed area.

This will spread out almost 1,235 men (about battle-group strength) over a square mile. They present a profitable nuclear target, but they are on the ground, which is generally full of dips and folds, hills and vales. Even if a 20 KT weapon were dropped dead center of this mile square, many if not most of our men would survive to fight another day.

So I say mobility really means dispersion (in the nuclear tactics sense), with the additional ability to fight a successful battle.

This type of mobility requires two extra features in our training program: control and endurance. Control can be maintained by word of mouth, from man to man, rear to front, left to right. Endurance can be acquired by injecting more and more walking into our training, by taking the wheels from under our soldiers. Conditioning exercises make our men tough. Korea should have taught us what toughness can do even without superior equipment. The Chinese Reds had little transportation but they forced us to withdraw. In a future war we may face an enemy numbering millions rather than hundreds of thousands. So we must prepare to meet overwhelming numbers not only with better equipment, but tougher soldiers.

If what I hear is correct about the methods of attack and defense that will be used in the future war, then we can visualize fighting by individual soldiers and small groups. On their own, in little or no contact with large units, they will have to live off the land for extended periods. They will have only one mission: to destroy the enemy.

Now my final query: Are we physically, mentally and spiritually prepared for this type of fighting? We'd better be!

Captain Thomas J. Yantz, Infantry, *was commissioned from OCS in 1943 and served with the 85th Infantry Division in Italy. He is now a unit advisor with the Army Reserve at Sacramento, Calif.*

HYDRA-HEADED ARMY

MAD HATTER

The several pieces of headgear we are required to own, to carry around, and to wear have become more than just a nuisance. It's time for a serious effort toward standardizing on two or three head coverings that will meet all conditions. The problem may seem trivial when compared with efforts to land on the Moon, but too many hats are not only a nuisance, they can have a debilitating effect on our fighting troops.

The average combat officer must own and carry at almost all times a green service cap, a blue service cap, and a green garrison cap. That is, if you do only office work in a temperate climate. If you're in the tropics, add a white cap. If you expect any kind of field service, you must carry around the PX-civilian version of the utility cap. All these caps are of different shapes, and can't be easily packed into a suitcase. And I can't picture a soldier carrying around three or four hat boxes like a fashion-show model.

When you join a field unit you must acquire helmet with liner, and if your winters are cold, a pile cap too.

Six or seven pieces of headwear! No

average civilian owns that many, let alone carries them around with him (and we haven't counted civilian hats). It's not so bad when you settle down in your home (except for taking up too much closet space). But who settles down these days? For long, anyway? We're supposed to be a highly mobile Army.

The count goes to eight if you consider helmet and liner as separate articles. The trouble of painting and prettying the liner for separate wearing is about matched by the advantage of a two-in-one combination that only loads the owner with what amounts to one hat.

It's even worse for tankers and aviators. When the tanker enters his vehicle he parks his issue helmet and dons a football headgear that stays in the tank. That's because the helmet we are now issued doesn't admit the existence of radio. (I'm glad to note we're developing one with built-in radio.)

The aviator has the same trouble: only the pile cap will accommodate earphones. But he has nothing else to fall back on. A different, football-type helmet is being developed for him (although his problem is the same as the tanker's), but only token issues have been made. So the aviator and observer, to whom radio is vital, either wear no hat and put up with the sun's glare or sport a baseball-type cap that has a visor (provided by aircraft manufacturers, for free, complete with advertising).

In the field, helicopter and lightplane people who live with the combat troops wear the steel helmet when on the ground, but they park it somewhere when they go aloft. A lightplane is not nearly as roomy as a tank, and a loose helmet rolling around can be more than annoying.

Moreover, a tank has a reasonably permanent crew. Each man's football helmet, once fitted, is his. Not so with the aircraft crew. A plane may change pilots or have a dozen different observers or passengers in any one day, and the football helmets won't always fit everyone.

In our modern scheme of reliance upon communications, a combat helmet that doesn't work with radio is a nuisance and a hindrance.

The field cap—the "overseas cap" of World War I—was designed to provide a soft, temporary replacement for the helmet. It could be folded and carried in a pocket. Our utility cap was designed for the same purpose, with the visor as an added feature. But what happened? The overseas cap became dressier and stiffer until a fold would ruin it. The issue fatigue cap was first stiffened with cardboard, then with celluloid, and now has mutated into a country cousin of the French képi. It won't fit your pocket, it can't be worn with a headset, it doesn't keep rain off the back of your neck, and it looks like what it is: ersatz.

The utility cap is still issued, of course, but its use is sometimes severely restricted. I know of one division where it was not only forbidden, but all the utility caps issued were stapled to the bottoms of footlockers, to prevent any inadvertent wearing of this "article of uniform."

Recently we made a major break with tradition, ending the rule of "always a matching hat" by eliminating the tropical worsted headgear. That was a step forward, but only in the administrative field. Couldn't we also do without the blues and whites? We need more reform in the combat field which, after all, is the only concern of an army. Taxpayers, unlike kings, don't support armies just to keep them looking pretty.

So let's try to get a combat helmet that admits the existence of radio, one that can be used interchangeably by *all* combat troops. We have a shadowy start on extrasensory perception, but that won't replace radio for some time. And let's have a field cap that is just that—one that is comfortable, can be carried in the pocket, and can also be worn under a headset.

***Mad Hatter** is a two-star general presently in command of a combat division of the active Army.*

REGULATIONS MEAN WHAT THEY SAY

MAJOR THOMAS T. JONES

FROM time to time Operation Paper Chase achieves outstanding economies. I suggest it's time for Operation Memo Chase, to save many more times the amounts of money and man-hours Paper Chase ever did. In fact, this new operation should inevitably result in a tremendous Paper Chase.

I think all Army Regulations should begin with: "This regulation is the *law*, and no other memorandums, circulars, letters, or other informal instruction will be issued by any headquarters down to and including the squad."

The current AR 735-11, with its changes, offers clear, concise yet complete directions for preparing and processing a report of survey. No headquarters need publish a further clarification or interpretation. In one outfit where I commanded a company, there were four headquarters between mine and the Pentagon. Each issued its own official memo or circular on how to prepare a report of survey.

Many of these intermediate instructions merely said that paragraph so-and-so of this AR would be followed without deviation, thereby planting the seed of doubt as to when a particular regulation was to be followed. An Army Regulation is a direct order. Why can't it be accepted as such without each headquarters telling its subordinates that its provisions must be obeyed? Redundancy and duplication cost money that can be used for more productive endeavors.

People transferring from Stateside to overseas commands must learn procedures differing from those used at their former stations, no matter how many reports of survey they may have completed back at Camp Memo. Once I have mastered the procedure used in Europe, say, why must I again learn anew when I return to the States? Isn't AR 735-11 binding on *all* United States Army units?

The practice of intermediate interpretation of ARs wastes much of the money we spend in sending soldiers to schools that teach the AR is the proper guide. It wastes a lot of time to explain to the soldier why you sent him to school in the first place, if the ARs he studied become meaningless when he is assigned to a job where they are reinterpreted for him. Now and then we come across an instruction that would baffle even an Einstein. Also, post schools are set up to teach supply clerks local procedures, resulting in more duplication.

To compound the confusion, many of these interpreting memos don't say which paragraph they explain, so subordinate units go back to headquarters for clarification. This usually leads to the publication of changes to the explanatory memo, and the man who raised the question wishes he hadn't. If interpretation is inevitable, at least each memo should say what paragraphs of the AR they change, thus leaving no doubt that part of the regulation came through unscathed.

I think the preparation and processing of reports of survey, efficiency reports, equipment status reports, and similar documents can be standardized Army-wide. It would save time and money in the long run if we added a few pages where necessary to an AR that applies only to forces stationed on Ice Floe No. 2. Thus we can eliminate the flow of circulars and memos that serve as camp followers to every AR and Special Regulation arriving from the Pentagon.

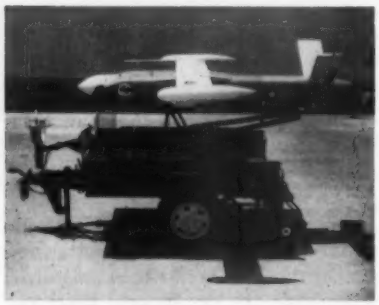
It would be necessary to encourage units in the field to suggest changes to regulations falling in this "untouchable" category, since many procedures established by them can be improved by people who handle paperwork day after day. Continuous study and review would reveal what regulations could be added to the list that are not to be interpreted by lower headquarters. The habit of interpretation is a deeply ingrained one that will be hard to break, but strong command direction from the top can provide the necessary cure for a very expensive and wasteful habit.

Major Thomas T. Jones, Corps of Engineers, *is now with the 17th Engineer Battalion (Armored Division) at Fort Hood, Texas. He wrote "The Tilt of a Chair" in our August 1958 issue.*

Irons in the Fire

This Drone a Worker

Successful test flight of a new surveillance drone at Army Signal Corps Electronic Proving Ground, Fort Huachuca, Ariz., was revealed by the Army. The drone was researched, developed, and built by Rheem Company's Defense and Technical Products Division at Downey, Calif. on a hurry-up basis. The pilotless craft can be operated under battlefield conditions in any weather, with standard Army equipment which can be handled and operated easily. The craft is launched from



Army drone and launching platform

a standard Army truck, assisted by two small rockets. Once in the air, its engines take over and it is guided over enemy territory to gather information which is reported back to field COs. The drone returns to its launching site for recovery by parachute and reuse. Two cross-country Army trucks with current equipment can support eight SD-2 drone systems, including check-out consoles, launchers, boosters, and command ground systems.

Air Age Factory To Base

Large Army vehicles will be flown by MATS direct from manufacturer to Army establishments in the U. S. and Alaska in the future. Pioneering the move, the 13-man armored personnel carrier, T-113, made by Food Machinery and Chemical Corp., San Jose, Calif., will soon be flown to Aberdeen Proving Ground, Md.; Ordnance Tank-Automotive Command, Detroit; Fort Knox; Fort Benning; and Fort Greely, Alaska. The aluminum T-113s represent a part of the Army's modernization program to achieve greater land, air and water mobility. The vehicle, designed primarily to provide infantry with armor-protected battlefield mobility, can also be used as a carrier for rocket launchers, self-propelled weapons, mortars, anti-tank missiles, or cargo, as a communications vehicle or fire direction center.

Army Launches 33d Redstone

The 33d successful firing of the Army's Redstone surface-to-surface 200-mile missile was one of the last for Redstone as a research and development vehicle. The missile is now operational and in the hands of troops. Developed at Redstone Arsenal, the Chrysler-built missile has had only three unsuccessful firings since its initial launching in 1953.

AOMC Gets Missile Engine OK

The Advanced Research Projects Agency has assigned a high priority to Army Ordnance Missile Command at Redstone Arsenal for the construction of a large liquid propellant booster of 1.5 million lbs. thrust. This is about eight times that of the nation's largest existing propulsion unit. The booster will consist of a cluster of currently tested rocket engines, packaged into a single unit. The main element of the cluster will be an engine similar to that used in the IRBM and ICBM vehicles, Jupiter, Thor and Atlas.

Solar Furnace For Army QM

The nation's largest solar furnace, expected to produce temperatures near 5,000 degrees, began operation 30 Sept. at the QM Research & Engineering Command, Natick, Mass. The solar furnace, which transforms ordinary sunshine into temperatures near those generated by a nuclear explosion, is designed for laboratory testing of Quartermaster materials for protection of troops against thermal effects of nuclear weapons.

Aluminum Bridge Tested

Engineer R&D Laboratories are conducting structural tests on four experimental all-welded aluminum truss panels for a military tactical bridge. Fabricated by ALCOA from new, non-heat-treatable, weldable aluminum alloys, the truss components are expected to support a 60-ton tank load on a 90-ft. span. The trusses are divided into lightweight, simply connected panels, affording portability and rapid construction.

Convoplane Concept Studied

An aircraft concept designed to combine high forward speed with vertical flight capabilities, is undergoing an aerodynamic study by Goodyear Aircraft Corp. for the Army. Known as the "Convoplane", such an aircraft would go from forward flight to hovering without rotating the plane or the power rotor axis (as with "convertiplanes"), and without using auxiliary propulsion. The convoplane concept achieves transition from forward to vertical flight by changing direction of air flow. The aircraft would be powered by two large rotors housed in the combined wing-

Convoplane concept, currently undergoing aerodynamic study by Goodyear for the Army Transportation R&D Command, offers the prospect of high-speed forward flight along with vertical lift

Largest Earthmover

The world's largest earthmover, with twice the capacity of any similar vehicle previously in use, has recently been unveiled by LeTourneau, Inc. The mammoth work horse, with an empty weight of 65 tons, can carry a payload of 70 tons (50-60 cu. yds.). The super-scraper travels on 7.3-ft. tires at 20 mph fully loaded. Fuel capacity is about 325 gallons.

fuselage area. Housing of the rotors inside the aircraft eliminates hazards to pilots and ground crews, and danger of damaging rotor blades through contact with obstacles. The convoplane promises capability of landing on almost any type of terrain, and its design provides the ability for glide descent in case of power failure. The aircraft can be designed as a small, light plane for reconnaissance or as a larger craft for cargo transportation.

Ozone Sterilizes Sewage

Army Chemical Corps has announced a new process utilizing gaseous ozone for sterilizing sewage containing disease-producing organisms. The Army's Biological Warfare Laboratories, Fort Detrick, Md. and Armour Research Laboratories, Chicago, undertook the joint study in which ozone gas, generated by electric discharge in air, or oxygen in special equipment, is bubbled through columns of liquid waste. The ozone, a powerful oxidizing agent, dissolves in the liquid, then penetrates and destroys all living organisms.

Nuclear Battlefield Tank

A new medium tank, designed to fight and survive on nuclear battlefields, will be developed by Chrysler Corp., for the Army. Designated the XM60, the new tank is expected to weigh in at about 30 tons and possibly be armed with guided missiles. It may replace the 52-ton M48 Patton.

Wingless Flying Vehicle

A research flying vehicle without any visible means of support is under study by Chrysler Corp., for the Army Transportation Corps. Resembling a pair of window fans, with the pilot in between, the compact vehicle is operated by vanes which deflect the air stream to the desired direction. It will be smaller than a helicopter.

Ski-like landing gear on Otter

All-Surface Landing Gear

A versatile, all-surface landing gear, capable of landing on or taking off from water, mud, snow or ice, tundra, swamp or rice paddies, has completed tests at All American Engineering Company's test center at Georgetown, Del. The gear was tested on a DeHavilland Otter, an Army utility aircraft weighing 8,000 lbs. Military aircraft so equipped can operate along beachhead shorelines or in undeveloped forward areas transporting troops and supplies without relying on airfields.

HOT SPARKS

The Army has been authorized to buy 70,000 lightweight M-14 rifles in FY 1959. Two manufacturers will be selected to produce them.

A hangar, to be used for testing missile and aircraft components under simulated flight conditions, is being built at Bedford, Mass. by Raytheon Manufacturing Co., for the Navy Bureau of Aeronautics. The structure will consist of two hangar areas separated by a three-story shop section, totaling 72,000 sq. ft.

Improvements in methods of making aerial photographs at night are sought by the Combat Surveillance Dept. of the Signal Corps Electronic Proving Ground at Fort Huachuca, Ariz. One method employs a special camera which takes pictures 9 in. sq. on a 75 ft. roll of film. Magnesium flash cartridges, automatically ejected from a plane over the target area, light up an area 3,000 ft. sq. at 2,000 ft. altitude. The camera motor moves the film at a rate to compensate for the plane's speed.

A paper sandbag that could replace the standard jute sandbag is under development at Engineer R&D Laboratories, Fort Belvoir. The knitted paper sandbag has all the physical properties of the jute bag, both wet and dry, and it stacks and handles satisfactorily. The knitted fabric does not ravel when punctured, resists shock effects of a close blast, and has a service life in water comparable to the standard sandbag.

A three-place utility helicopter, the 12E, was placed in production by the Hiller Aircraft Corp. in September. With its Lycoming 305-hp engine, the 12E is a higher powered version of the H-23D "Raven" now being delivered in quantity to the Army for observation, light utility and primary training.

A new advanced weapons system group has been formed by Philco Corp. Government and Industrial Division to study and formulate systems to meet future military requirements.

General Electric Co. has transformed its Missile and Ordnance Systems Department into a Missile and Space Vehicle Department. The move was made "to meet the challenge of the space age and to satisfy the diverse requirements of military customers."

A new Applied Science Division, with Warren R. Smith as general manager, has been formed by Fairchild Engine and Airplane Corp. It will conduct weapons system and operations research for the government.

Modifications in the development of an airborne drone surveillance system for the Signal Corps, amounting to $22 million in new work, is in the works for Fairchild's missile-aircraft division.

World-wide supervision of the disposal of Army surplus supplies and equipment has been assigned to the Quartermaster General and an Army Property Disposal Center has been established at the office of the Quartermaster General.

A series of tests proving the feasibility of creating and destroying clouds by a "seeding" process using ordinary carbon black has been completed by the Naval Weather Service. In one experiment, a cloud which ranged from a base at 5,000 ft. to a top at 11,000 ft. was disintegrated in less than 20 minutes. In a cloud-making run, liquid carbon solution poured over a mile-long track at 4,000 ft. altitude formed a line of clouds with bases at 3,000 ft. and tops at 6,000 ft.

The Army's entire fleet of L-19 Bird Dog training planes will be modified with ten improvements by means of a conversion kit.

THE MONTH'S BOOKS

"Ablest of All"

LOST VICTORIES
Field Marshal Erich von Manstein
Henry Regnery Company, 1958
574 Pages; Illustrated; Maps; Index; $7:50

Reviewed by
MAJ. GEN. HAROLD W. BLAKELEY, *USA, retired, reviewer of many books on World War II, who commanded the 4th Infantry Division in Europe.*

In Liddell Hart's *The German Generals Talk* there are two opinions which testify to the importance of this book: "The German generals [of World War II] were the best-finished products of their profession—anywhere" and "the ablest of all the German generals was probably Field Marshal Erich von Manstein."

In a recent issue of *Army Information Digest*, Lt. Gen. C. D. Eddleman said that "we must not rely on the lessons of history to an undue degree, for much that we are doing and will do in the future has no precedent." He also points out that the Army must be prepared for situations in which use of atomic weapons is not authorized or has not been begun. Manstein's comments on tactics as applied in Western Europe in 1940 and his accounts of the 1941-44 campaigns against the Russians certainly have some value in connection with future atomic-free "situations." His opinions on leadership, staff functions, training and discipline have validity in any case.

Two quotations give the flavor of Manstein's opinions. On corps commanders: "A man who is constantly rushing around his forward areas, and can never be found when required, virtually hands over his command to his staff. This may be quite a good thing in many cases, but is still not the role for which he was intended." On patience at the start of an attack: "Subordinate formations quite rightly dislike getting inquiries about the progress of a battle, which they are likely to interpret as a sign of nervousness. Consequently it is better just to sit and wait."

Unfortunately for American readers, Manstein has no comments on any campaigns in which American troops participated. His career was terminated in March 1944 when he was relieved of command of the Southern Army Group on the Russian front after a series of disagreements with Hitler. In one exchange with Der Führer, Manstein told him, "All I can say to your interpretation of my motives is that *I* am a gentleman." Relations deteriorated rapidly after that. The Field Marshal's summary of Hitler is "utterly unscrupulous, highly intelligent and possessed of an indomitable will." What Hitler lacked was "military ability based on experience—something for which his 'intuition' was no substitute."

Manstein analyzes some well-known deficiences of the Wehrmacht such as the "quite impossible organization of the supreme command," and the "sheer lunacy" of having, in one army, regular divisions, Waffen-SS divisions, and Luftwaffe field divisions. He has an interesting comment on the Maginot Line. He says it was obvious to any military mind that the Germans "would not be keen—or able—to assault it." Unfortunately, Manstein does not pursue the subject. It is now customary to refer to the Maginot Line with contempt. Actually, its garrisons did not surrender until France capitulated. Properly used to economize force and in connection with a well-equipped, trained, and disciplined mass of maneuver, the Maginot concept had much to be said for it.

Maintaining Fighting Strength

COLD INJURY, GROUND TYPE
By Colonel Tom F. Whayne and Michael E. DeBakey, MD
Government Printing Office, 1958
570 Pages; Illustrated; Index; $6.25

EMERGENCY WAR SURGERY
By Department of Defense
Government Printing Office, 1958
411 Pages; Illustrated; Index; $2.25

Reviewed by
LT. COL. DOUGLAS LINDSEY, *Medical Corps, who has been a combat surgeon, wrote many medical and military articles on care of the wounded, and recently joined the Directorate of Medical Research, Chemical Warfare Laboratories.*

On a dreary night in December 1944 the field telephone rang at an aid station in the Rhineland: "Lieutenant Lindsey? This is General Hardrock. I understand you diagnosed a case of trench foot at your aid station today. Don't you know I have *ordered* that there will be no more trench foot in this division? See that you are mighty careful in your diagnoses from now on."

That was my first contact with General Hardrock. From later contacts—surprisingly close and frequent considering a six-grade differential in rank—I came to know him as the finest combat commander I have ever served. His feeling about trench foot is common in high and (supposedly) well-informed places, engendered by preoccupation with medical statistics *per se* rather than with their tangible tactical meaning. For example, unit commanders are still castigated into a state of anxiety over venereal disease rates, when the loss of duty-time these diseases cause is now almost nil. Trench foot is another matter. The soldier goes to the hospital and is lost from his foxhole for an average of ninety-seven days per case, whether or not his admission diagnosis is correct.

These two books bear heavily on the maintenance of fighting strength. The first, a volume in the Army's medical history of World War II, deals with a problem soluble only by direct command action (with medical support); the other deals with intricate medical technical problems (which require command support and understanding).

"Cold injury, ground type," is a proper but awkward equivalent for "trench foot and frostbite." The publisher's accompanying handout says: "This is one of the most comprehensive volumes on the ground type of cold injury that has ever been published. If it is carefully studied, and if the lessons of the experience of the United States Army in World War II are properly read, marked, and learned, and inwardly digested, there should be no similar experience in any future war."

If combat commanders so will it, we need never again see cold injury in the epidemic form in which it appeared in Europe. But the pressure of combat, and the privilege of a commander to take a calculated risk, will always insure that in certain campaigns and battles trench foot and frostbite will continue to cause losses and exact a toll equalling those from mortars and small arms.

The full-color frontispiece of blistered and gangrenous feet is evidence enough of the importance to the soldier of preventing trench foot. The last chapter, "The Military Cost of Cold Injury," is conclusive support for the proposition that this medical volume is of direct and personal interest to leaders of combat units. Cold injuries incapacitated more than ninety thousand men, and it kept them in hospitals for an average period of three months. Most were infantrymen, and most of these doughboys were riflemen.

Selected Check List of the Month's Books

This run-down of some of the books received for review during the month preceding our deadline is to give our readers who like to follow current literature a monthly check list of the most important, useful and potentially popular books. Full reviews of some of these books may appear in this or subsequent issues. Any of these titles may be purchased through the Combat Forces Book Service.

CITIES AND CAMPS OF THE CONFEDERATE STATES. By Fitzgerald Ross; annotated by Richard Barksdale Harwell. University of Illinois Press, 1958. 262 Pages; Illustrated; Index; $4.50. A picture of the Confederacy during the last half of 1863 and early 1864 by a Britisher who was an observer as an Austrian Army captain.

THE COMMON SOLDIER IN THE CIVIL WAR. By Bell Irvin Wiley. Grosset & Dunlap, 1958. 898 Pages; Illustrated; Index; $5.95. Brought together in one volume are *The Life of Johnny Reb* (1943) and *The Life of Billy Yank* (1951). These two books first gave us a complete, life-size picture of the Civil War's soldier. The author is on the Civil War centennial commission. Fascinating reading, and a real bargain.

EARTH SATELLITES. By Patrick Moore. W. W. Norton & Company, 1958. 157 Pages; Illustrated; Index; $3.95. New edition, for the general reader, includes all developments through the latest Sputniki and Explorers. Concisely done, by an astronomer of international repute and author of many related works.

EISENHOWER: CAPTIVE HERO. By Marquis Childs. Harcourt, Brace & Company, 1958. 123 Pages; Illustrated; Index; $4.75. A critical study of the General and the President. The first extensive critical survey of Eisenhower and his administration by the popular political analyst.

JUTLAND. By Capt. Donald Macintyre, RN. W. W. Norton & Company, 1958. 282 Pages; Illustrated; Maps; Index; $3.95. In June 1916, 248 British and German warships, manned by 105,000 men, engaged in one of the greatest and most controversial sea battles of all time. This is almost a blow-by-blow account of that North Sea action.

A REBEL WAR CLERK'S DIARY. By John B. Jones; annotated by Earl Schenck Miers. Sagamore Press, 1958. 545 Pages; Index; $7.50. The celebrated diary of the Confederacy's Samuel Pepys, who was Chief Clerk of its War Department. Since 1866 a classic on living conditions in Richmond, the workings of the War Office, and estimates of Cabinet and Army personalities.

THE RED CROSS CONVENTIONS. By G. I. A. D. Draper. Frederick A. Praeger, Inc., 1958. 228 Pages; Index; $6.00. Based on the author's lectures at King's College, University of London. Discusses treatment of civilians, POWs, wounded, and has full texts of the conventions of 1949 and 1957, with list of nations which have ratified them.

SOLDIERS AND WHAT THEY DO. By Col. Arthur Symons, USAR. Franklin Watts, 1958. $3.95. What started out to be one of a series on careers for junior-high students developed into a guide for all young men thinking about military obligations. Authentic; a useful gift for all males 14 and up, even to those crowding 21.

THE STUDY OF LEADERSHIP. Edited by C. G. Browne & Thomas S. Cohn. Interstate Printers & Publishers, 1958. 487 Pages; Illustrated; Index; $5.75. Key studies in the dynamics of leadership that set forth in terms easy to comprehend the thinking of major authorities in the fields of psychology and sociology. There are excellent chapters on the armed forces.

THE UGLY AMERICAN. By Capt. William J. Lederer, USN, and Eugene Burdick. W. W. Norton & Company, 1958. 285 Pages; $3.75. Lederer fans will be glad to know he's in print again, this time with a co-author, to tell in fictional form why Americans are not liked in Southeast Asia. Included is a documentary epilogue "which we hope will convince the reader that what we have written is not just an angry dream."

UNIT HISTORIES OF THE UNITED STATES AIR FORCE: Including Privately Printed Personal Narratives. Compiled by C. E. Dornbusch. Hampton Books, 1958. 56 Pages; $2.00. Includes every known publication, even mimeographs. A stupendous job, by the world's foremost collector, who is in charge of the unit history section at the New York Public Library and who compiled a similar volume for Army units. His collection exceeds that of the Library of Congress.

In terms of loss of fighting riflemen, cold injury cost us the equivalent of sixteen divisions for nearly three months in ETO alone during the winter of 1944-45.

To avert such a disastrous epidemic is not a problem of vaccines and pills. Quite bluntly, the responsibility is the soldier's leader's. Once Chapter XVI convinces the commander that the problem is serious, he must wade through Chapters I to XV to learn why the job is his, and how he might get it done.

The manual on emergency surgery has a different significance. It is difficult to get a group of medicos to agree on any comprehensive regimen of treatment. When the doctors are surgeons, the task is magnified. When the group of surgeons includes French, British, Americans and others, the problem is virtually insoluble. That this manual has appeared at all is a personal tribute to Brig. Gen. Sam F. Seeley, chairman of the Surgeon General's committee of anonymous authors. That the manual bears a foreword by Dr. Frank B. Berry, Assistant Secretary of Defense (Health and Medical), indicates the quality and importance of the work.

Our Army's medical service long has been organized so as to place medical units and medical responsibility directly under the commander whose units they habitually support. Here is a technical SOP which will affect your units for a long time; it is a standard against which your medical officers will be measured.

More important, this manual gives a fair picture (albeit brief and simplified) of some of the work done by medical units of a field army. Careful analysis gives an inkling of the medical dilemma of future warfare. In less than two decades the division has seen its signal and ordnance elements grow from companies to battalion, while its medical regiment was reduced to a battalion and now a company. This is no way to cope with a manifest *increase* in the requirement for maintaining and salvaging human machines.

As a starter, the lay officer might brush through the chapters, "Multiple Injuries" and "Shock and Resuscitation." Too often we hear the role of the unit's aid station depreciated by the rattling off of a brief checklist of (semantically) simple functions including "treatment of shock." It might be well to know more about what kind of professional endeavor such a statement entails.

It's worth the while of any professional soldier to take a break from tactics and logistics and dig into both these medical volumes.

Level-Headed Battle Leader

TOWARD GETTYSBURG: A Biography of General John F. Reynolds
By Edward J. Nichols
Pennsylvania State University Press, 1958
276 Pages; Illustrated; Maps; Index; $6.00

Reviewed by

COL. FREDERICK BERNAYS WIENER, *JAGC, USAR, a practicing attorney of Washington, D. C., contributor to this magazine, and author of several articles on general officers of the Army.*

Every visitor to the field at Gettysburg, every student of the battle, has been struck by the drama of its opening and the death at that juncture of the commander of the first Union troops to be engaged, Maj. Gen. John F. Reynolds, USV, CG of I Corps. Here, nearly a century later, is that officer's biography, drawn from his letters and family papers.

Reynolds, a Pennsylvanian, graduated from the Military Academy in 1841, twenty-sixth in a class of fifty-two, and

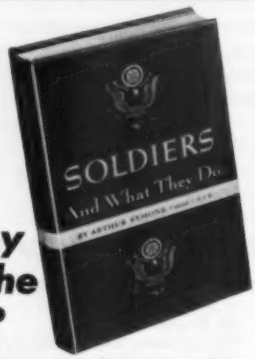
was commissioned in the Artillery. At Buena Vista he distinguished himself as a subaltern in Braxton Bragg's battery. After service against the Mormons, be became commander of the Division of Pennsylvania Reserves when the Civil War began, and led it on the Peninsula, where however he was captured. Duly exchanged, he again commanded his division at Second Bull Run, but during the Antietam campaign he was detached in order to assume the thankless task of organizing—more accurately, of attempting to organize—the Pennsylvania Militia to protect the state from invasion.

Thereafter he returned to the Army of the Potomac to command I Corps, which he led at Fredericksburg, at Chancellorsville and until he was killed at Gettysburg. He shone as a battle leader, certainly by comparison with most of his colleagues; and on the strength of what is contained in the family papers, Professor Nichols concludes that he was offered the command of the Army of the Potomac after Chancellorsville, but declined because denied a free hand. What his ultimate position would have been had he lived—for, as is well known, Grant was unhappy with Meade by late 1864 and retained him in command simply because there was no replacement available—would make an interesting speculation, though hardly a profitable one. One might as well ask, what would have happened at Gettysburg had Stonewall Jackson not been killed at Chancellorsville.

Reynolds was not quite forty-three when the end came, and still a bachelor, although a ring found when he died bespoke a betrothal. He was a thoroughly competent and effective officer, unique in those far-off days for his ability to lead volunteers despite his West Point background. His political views seem to have been confused, and his personality, despite yeoman efforts by his biographer, never seems to appear in sharp focus.

We owe Professor Nichols a debt for re-creating all that is known of a dramatically tragic figure. Perhaps it is inevitable that one whose outstanding trait was level-headed competence should show so few distinctive traits of character when sought to be reconstructed.

Just Published



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Showcase of Democracy

PHILIPPINE FREEDOM: The First Decade
By Robert Aura Smith
Columbia University Press, 1958
375 Pages; Maps; Index; $5.00

Reviewed by

LT. COL. JOHN B. B. TRUSSELL, Artillery, *who earned a Master's degree in International Affairs from Columbia University, and recently returned from a tour in the Far East.*

This book is somewhat more comprehensive than its name implies. First, Mr. Smith firmly establishes the provocative thesis that freedom and independence are not necessarily the same; in fact, that independence can exist without freedom as well as freedom without independence. He proceeds to demonstrate how the education, public health, political, public works and economic programs fostered by the United States during the decades of the Philippine Commonwealth made possible an atmosphere in which true freedom could exist with independence.

After this detailed presentation of background, the book's treatment of the Philippine experience during World War II seems somewhat sketchy. In view of the influence on the postwar political scene of the actions during the war years of major Filipino political figures, this subordination becomes something of a defect. However, it is not a serious one, because the treatment of the main topic —the years of Philippine independence —is lucid and clearly authoritative.

Recognizing the dangers to popular government which resulted from the corruption which existed for a time after the war and the important economic problems which persist, Mr. Smith finds the present situation in the Philippines on the whole reassuring and the future outlook promising. He regards the tragic death of President Magsaysay as having one compensation, in a sense, in the proof offered by the orderly transfer of authority that the habit of democratic procedures is firmly established. He sees particular significance in the influence which the Philippines exercise as a leading nation in Asia.

Philippine Freedom is a valuable contribution to increased understanding of a country which is important both as an outpost and a showcase of Democracy.

Ten Raids in the Desert

THE PHANTOM MAJOR: The Story of David Stirling and his Desert Command
By Virginia Cowles
Harper & Brothers, 1958
320 Pages; Maps; Index; $3.95

Reviewed by

GEORGE F. HOWE, *author of* Northwest Africa, *a volume in the Army's official history of World War II, and of* The Battle History of the 1st Armored Division.

This book describes a series of ten raids, single or multiple, during 1942 and 1943 by a British Army unconventional unit known as Special Air Service. Targets were Axis airfields and grounded aircraft, vehicles, ammunition and fuel dumps. SAS were a free-wheeling set of demolition experts who operated from temporary bases in the Western Desert against objectives in the rear of Rommel's German-Italian Panzer Army. Their night forays inflicted considerable damage, at critical times, until the enemy ceased to be surprised, turned out a relatively large force to stop them, and ended Stirling's leadership by capture.

Stirling is the "hero," the "phantom major." By the time he was captured he had become a lieutenant colonel, but he was still a phantom personality. Early in the book, he becomes "David" to its author. To the reader, he never seems quite real. Perhaps it is because the only acknowledged flaw is a flaming temper, usually held under superhuman control.

The book has a thesis and to some extent Stirling is a symbol. He represents unorthodox warfare waged with good judgment as well as with superlative courage and endurance. He first overcomes resistance from blind, inhibited staff types at Mideast Command headquarters, in order to demonstrate what can be accomplished in his way. Then he earns approbation in high places, though not from Montgomery. After succeeding in his own fashion, he suffers from an attempt, into which he is drawn against his better judgment, to execute an overcomplicated plan, conducted on too large a scale. Finally, he loses in an audacious effort of his own to get through the gap north of Gabes and thus enter the area of British First Army in northern Tunisia. He is captured, escapes, and is recaptured.

The Phantom Major belongs some-

where between historical scholarship and dramatic journalism. The author does not analyze or support with the thoroughness of professional history the thesis that Stirling's kind of fighting was capable of winning campaigns as a supplement to the more conventional types of warfare. The effort to be accurate is apparent and all right so far as it goes. Drama is served by occasional resort to dialogue between the characters, and other quotation of memoirs by the participants, but it is chiefly inherent in the action of the raids.

To summarize, the book succeeds in relating some very daring exploits by men of extraordinary courage and endurance. It exhibits fine leadership in these operations without explaining it too well. It proffers a thesis of doubtful merit without being at all pretentious about it.

The Army in the West

AN APACHE CAMPAIGN IN THE SIERRA MADRE
By Capt. John G. Bourke
Charles Scribner's Sons, 1958
128 Pages; $2.75

Reviewed by
LT. COL. HENRY S. MERRICK, *AUS, retired, who is on the editorial board of* Military Affairs *and is Historian of the Order of Indian Wars.*

This is a reprint of the 1886 original, which has long been out of print. It is an exceedingly interesting account by an observant participant and a facile writer of just another of those seemingly interminable expeditions by the Army in pursuit of hostile Apaches in the years following the Civil War, albeit one of the best commanded and most strenuous. Led by General George Crook against Geronimo and his Chiricahua Apaches in the mountains of Mexico, this seems but a dress rehearsal for the Gatewood expedition of 1886, when Geronimo was finally removed from circulation. One wonders how mechanized cavalry could have pursued, even when sure-footed pack mules slipped from the trail into the abyss.

The author is outstanding in that horde of writers during and after the Civil and Indian Wars who rushed into print with anything from drivel to real class. Everything he wrote was excellent. His best-known work is the Boswellian *On the Border with Crook* (1891), a standard authority, although much concerns Crook's service against the Plains Indians where he was not so universally successful as in the Southwest.

Of a high-class Irish family, Bourke, already well educated for a lad of sixteen, ran away and enlisted in the 15th Pennsylvania Cavalry in 1862. He graduated from West Point in 1869, eleventh in a class of thirty-nine. As a shavetail he was assigned to the 3d Cavalry, and remained with it until he died in 1896, except when on detached service. As an anthropologist, linguist and student of Indian customs and folklore, mostly Apache, he contributed many papers and published many books on these subjects. After Geronimo's final surrender in 1886 Bourke was detailed to Washington to write up his voluminous notes, and remained until 1891, which indicates the importance placed on his observations, although he never advanced beyond the rank of captain.

Unfortunately there is no map, as one would add much to the interest and ease in reading. There are no illustrations except a copy of an unidentified photograph on the jacket and the drawing of an Apache holding his rifle in an incredible manner, shooting into the air with black powder from behind a prone horse, fully equipped with bridle, flat saddle and crupper—a combination which is not convincing.

The introduction by J. Frank Dobie, than whom no one could be better, although he is a little hard on some of Crook's contemporaries, adds much to the interest of this reprint. Altogether, an excellent job of bookmaking.

ARMY LIFE ON THE WESTERN FRONTIER: Selections From the Official Reports of Colonel George Croghan; edited by Francis Paul Prucha, SJ
University of Oklahoma Press, 1958
187 Pages; Illustrated; Index; $4.00

Reviewed by
COL. JOHN U. AYOTTE, *USA, retired, a contributor to* ARMY *and its predecessors, and student of early Army history.*

George Croghan was a nephew of the famous brothers, George Rogers Clark and William Clark. At twenty-one he was a major in William Henry Harrison's army in 1813, and became a national hero by his defense of Fort Stephenson in Ohio against the British and Indians. After an absence of eight years in civil life, he was able to return to the Army in 1825 as colonel and Inspector General, in which capacity he served until his death from cholera in 1849.

Croghan spent most of his service as Inspector General in continuous rounds of the chain of frontier posts, from Detroit to Fort Snelling, from Fort Leavenworth to the western border of Louisiana. The reports he submitted are packed with pertinent information concerning most phases of life in the small, isolated garrisons and of the Army's relationship with both Indians and pioneer settlers. From the large bulk of Croghan's official correspondence, Jesuit Father Francis Paul Prucha has prepared an excellent condensation, interesting not only to the soldier and the historian, but to the casual reader as well.

Some of the problems Croghan encountered, and tried to solve for the battalion, company and post commanders on the fringe of the wilderness, now seem outdated and far away; others (notably the problem of overindulgence in liquor by soldiers) are quite modern indeed. There is a fine flavor in Croghan's writing, not often found in official reports, and this volume of selections, which contains the best of it, is heartily recommended.

Diplomatic History of 1957

THE UNITED STATES IN WORLD AFFAIRS, 1957
By Richard P. Stebbins and the Research Staff of the Council on Foreign Relations
Harper & Brothers, 1958
411 Pages; Illustrated; Index; $5.50

Reviewed by
DR. ROBERT N. WALKER, *consultant to the Department of Defense and Adjunct Professor at The American University in Washington.*

Here in a concise, skillfully written and comprehensive review is last year's diplomatic history seen from the advantageous perspective of hindsight. It is well known that official Army policy calls for all personnel to be broadly informed concerning contemporary problems of international relations. No single book, in my opinion, equals this one in the field.

The ultimate power to enforce a decision in international disputes which will not lend themselves to peaceful adjudication is the armed forces. In years gone by there was perhaps less need for well-informed military personnel; today the complexities of modern life, the ease and speed of communications and transportation, and the blending of areas of responsibility between the Departments of State and Defense make it essential for all personnel to be acquainted with the contemporary global picture and America's place in it.

One important action of 1957 was enactment of the Middle East Resolution (better known as the Eisenhower Doctrine) whose purpose is "to deter Communist armed aggression in the Middle East area" by removing any doubt that an armed Communist attack there would "be met, if need be, by the armed forces

Contemporary Military Reading List

Since we published the Contemporary Military Reading List (page 60, September), these have been added to the titles in the regulation now scheduled for publication on 15 November:

Foreign Policy: The Next Phase, by Thomas K. Finletter, 1958.

War and Peace in the Space Age, by Lt. Gen. James M. Gavin, 1958.

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of the United States." As this was written the possibility existed that the doctrine might be implemented by United Nations or United States-United Kingdom intervention in Lebanon, with consequent grave jeopardy to the peace of the world. This extension of our security commitments is not without risk. Communist reaction took shape in Jordan, Syria, and Lebanon. Particularly in Syria, a "cold coup" resulted in Syria's economy, its army, and political life being subjected to virtual Soviet control with consequent destruction of normal relations with the United States.

The book also treats with a broad brush events in the Far East and in the Americas, and ends with an appraisal of the advent of the space age.

The volume's editor poses the ultimate question, significant in every aspect of U. S. participation in world affairs: "Would mankind eventually destroy itself in the pursuit of irreconcilable political and ideological goals, or would it find ways of assuring the survival of the race while still preserving the millenary human ideal of freedom and peace with justice?"

Technique of Revolution

THE SEIZURE OF POLITICAL POWER
By Feliks Gross
Philosophical Library, 1958
398 Pages; Index; $6.00

Reviewed by
COL. CHARLES A. H. THOMSON, *Infantry, USAR, member of AUSA's Advisory Board of Directors, who is on the staff of the Brookings Institution.*

Professor Gross, Brooklyn sociologist, voluble lecturer and prolific writer, has added to the volume of works on revolutions of our time without adding much to analysis or insight. He claims main interest in how governments are overthrown from below, but his effort is far less valuable as a how-to piece than, say, Possony's *Century of Conflict*. Although full of aphoristic wisdom and occasional incisive comment, it argues no systematic doctrine or thesis. The preferences and values are those of democracy, but the author seems least helpful when he is discussing the difficulties democracies face when they try to deal with revolutionary drives. He is not much more enlightening in discussing the role and effectiveness of underground movements and of political emigrations. Most of his effort—and the best part—deals with the Russian revolution, starting with the Decembrists in 1825, going down through the populists for the ensuing seventy-five years, and bringing the story up to the Communists' Twentieth Congress. He touches on Chinese revolutionary strategy.

The most interesting aspect of the book is its numerous quotes. They do much to enliven the treatment, and in many places they really carry the story. A wide-range scholar, Gross has pulled together a lot of the better-known things—such as selections from Nechayev's *Catechism of a Revolutionary*, Lenin's April Theses, and the like—and also some lesser-known ones—like the extraordinary letter of a Russian revolutionary committee to the Tsar, offering condolence on the assassination of his predecessor, and demanding terms for peace and freedom in Russia. They had just performed the assassination. . . . These excerpts demonstrate, as no commentary can, that revolutionaries are no single, predictable breed.

The quotes ameliorate, but do not save the book. The author has simply not done justice to his subject.

So Much for So Little

THE DECISION TO INTERVENE: The Prelude to Allied Intervention in the Bolshevik Revolution
By George F. Kennan
Princeton University Press, 1958
513 Pages; Illustrated; Index; $7.50

Reviewed by
COL. R. ERNEST DUPUY, *USA, retired, a student of Soviet-American relations, whose* Perish by the Sword *is a critical analysis of the Czech anabasis and our supporting campaigns in North Russia and Siberia.*

Why did the United States in 1918 interject itself into Russian affairs? Why were American troops sent to North Russia and Siberia?

Mr. Kennan narrates in vivid style the sequence of events and the comic-opera treatment of those events which led to President Wilson's fateful decision. Surely no nation was worse served than these United States by its alleged diplomats in Bolshevik Russia during the period.

The cold facts of the case were that Mr. Wilson had to be sold a bill of goods by the Allies, to bring in the United States. To resist this pressure, he depended upon his diplomatic representatives for clear-cut, logical information. This he didn't get.

David R. Francis, U. S. ambassador, lived in a dream world of his own. Raymond Robins, chief of the American Red Cross Commission to Russia, brashly tried to usurp ambassadorial power—and nearly got away with it. The former dreamed of restoring the Tsar; the latter was convinced of the integrity of the Bolsheviki. Neither, it would appear, had the faintest concept either of the objectives or of the latent power of the Bolshevik movement. "Never, surely," writes the author, "in the history of American diplomacy, has so much been paid for so little."

Decision to Intervene ends with the arrival of our military on the scene, to take part in what would turn out to be the first adventure by the United States in "limited war."

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REPORT FROM YOUR AUSA CP

The Council of Trustees held its regular quarterly meeting on 11 September with the largest attendance to date. The following actions were taken:

Unanimously elected Colonel Willard Rockwell as Chairman of the Council for another year effective at the Annual Meeting.

Passed various amendments to the By-Laws. Because of the numerous modifications, the revised By-Laws will be published in pamphlet form and be ready for distribution in the near future.

Authorized cash awards to military personnel whose papers are selected as outstanding at the 1959 Army Science Conference.

Decided to initiate a revision of the AUSA pamphlet, *Security of the Nation.*

Discussed the raising of membership dues but decided against it at this time because increased numbers of members may solve the problem of obtaining increased revenue to finance necessary additional Association projects.

Decided to raise the magazine subscription rate effective 1 January 1959. This applies to unit funds, libraries, advisor groups, and other military and civilian organizations not eligible for membership in the Association. *Membership dues* for individuals remain "as is." The Council acted in a continuing effort to "hold the line" on current dues rates which have not been increased for more than eight years.

WALTER L. WEIBLE
Lt. Gen., USA, Retd.
Executive Vice President

CHAPTERS

ALAMO CHAPTER—Dinner meeting 23 September at Fort Sam Houston Officers' Open Mess was featured by address by Lt. Col. Vincent Hack, AMSS, on *Colorifics*. The President appointed new committees. Lt. Gen. Guy S. Meloy, the army commander, was among the eighty-three members attending.

CHICAGO AREA CHAPTER—Sponsored a preview showing of the new TV program, *Citizen Soldier*, 25 September. Gen. W. H. Arnold, commanding Fifth U. S. Army, Gen. Lawrence H. Whiting, Chapter Vice President, and representatives of veterans' organizations and others attended the premiere. Honor and color guards were supplied by 18th Infantry, from Fort Riley, Kansas.

DIX CHAPTER—New officers installed 29 September. An "all-out" membership drive is in progress, and the Chapter is trying to organize a large delegation to attend AUSA's 1958 Annual Meeting.

HQ. SEVENTH U. S. ARMY CHAPTER—Meeting 18 September at Topper First-Five Graders Club began with cocktails and steak dinner. Lt. Gen. C. D. Eddleman spoke on STRAC and AUSA, and accepted honorary presidency of chapter. New officers were elected. Delegates are being sent to AUSA Annual Meeting—one officer, one enlisted man.

COLUMBUS-PHENIX CITY-FORT BENNING CHAPTER—Meeting of officers and Board of Directors 4 September accomplished many actions including: plans for membership drive and action to raise number of renewals; approved letters to Senator Russell and Representative Vinson expressing the Chapter's appreciation for their support in upholding the strength of the ground forces; appointed delegate and alternate to AUSA's 1958 Annual Meeting.

FORT LEONARD WOOD CHAPTER—Gov. James T. Blair was guest speaker at AUSA-sponsored ground-breaking ceremony for permanent post barracks, in August.

FRANKFURT CHAPTER—New President is Col. F. R. Blankenship, V Corps Quartermaster, elected at September meeting. Guest speaker at meeting was Mr. Aaron B. Coleman, U. S. Department of State, who spoke on Escapee and Relocation Program for Europe.

GEORGE WASHINGTON CHAPTER—Mr. Henry Handler, Chapter Secretary, is continuing his one-man campaign to sign up officers and senior noncommissioned officers of local Nike batteries. Latest one hundred per cent units are Battery C, 75th AAA Battalion, and Battery A, 3d Missile Battalion, 562d Artillery.

HEIDELBERG CHAPTER—Lt. Gen. C. D. Eddleman was principal speaker at meeting 8 September. Approximately four hundred turned out for the occasion. General Eddleman conducted a question-and-answer program after his presentation, which was on STRAC.

NEW YORK CHAPTER—New officers installed at 30 September meeting. By-laws amended to provide for a Board of Governors.

PIKES PEAK CHAPTER—A planning luncheon, held at Colorado Springs El Paso Club, began activities for the 1958-59 season. Lt. Gen. Charles E. Hart of the Army Air Defense Command; Maj. Gen. M. J. Morin, Commanding General of the 9th Infantry Division and Fort Carson; and Brig. Gen. D. B. Johnson, ARADCOM Chief of Staff, attended the luncheon. General Hart spoke on the importance of AUSA. Lt. Col. J. D. Ackerman, chapter president, announced committee appointments. General Hart announced that Col. Lewis F. Shull would be ARADCOM's liaison officer to the Chapter.

POCONO MOUNTAINS CHAPTER—Maj. Gen. A. J. Drexel Biddle, national President of AUSA, presented a charter to the newly formed Pocono Mountains Chapter, at the Tobyhanna Signal Depot, 16 September. The new chapter, based on the Depot, has pledged enthusiasm and effort toward implementation of AUSA objectives.

SOUTHWEST OKLAHOMA CHAPTER—Name changed from Lawton-Fort Sill Chapter, with approval of National Headquarters. Chapter participated in Kiwanis luncheon, at which Lt. Col. Herbert L. Garris spoke on the necessity for a combat-ready Army.

VIRGINIA PENINSULA CHAPTER—Gen. John E. Dahlquist, former Commanding General, Continental Army Command, and Trustee, AUSA, was the principal speaker at an organization meeting 16 September. Gen. Bruce Clarke, present Commanding General, and other leaders of both the civilian and military community were present. Mr. George T. Abernathy, of the Newport News Shipbuilding and Drydock Company, was elected president of the provisional chapter.

WESTCHESTER COUNTY CHAPTER—Mr. Harold Greene, DAC at Fort Slocum and former Secretary-Treasurer of the Chapter, was elected President of the Chapter at meeting 19 September.

WOLTERS CHAPTER—Buffet-style picnic supper 11 September, attended by 120 members and guests, began the 1958-59 season for Wolters Chapter. Mayors C. K. Davis of Mineral Wells and Mark Littleton of Weatherford expressed their appreciation for AUSA's services. Col. Chester H. Meek, deputy post commander, welcomed the guests.

ROTC COMPANIES

ILLINI COMPANY, University of Illinois, Champaign, Ill.—Rear Admiral O. H. Dodson, USN, Retired, was the principal speaker at Illini Company's first meeting of the school year, 24 September. Admiral Dodson discussed the recent submarine cruise under the polar ice cap. Captain Mann, Faculty Adviser, reviewed the contents of ARMY magazine for the prospective members.

LA SALLE ROTC COMPANY, La Salle Military Academy, Oakdale, N. Y.—First meeting of the school year was held 13 September. Committees were appointed. Announcement was made that Capt. John Murphy, USAR, captain of La Salle's football team in 1943, would be the feature speaker at an AUSA-sponsored football rally 20 September.

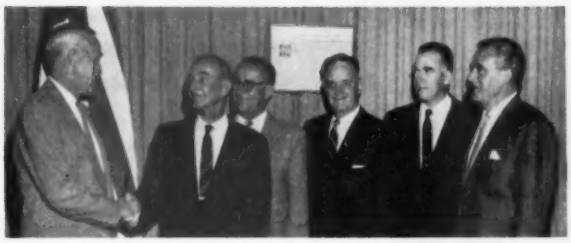
SOONER COMPANY, University of Oklahoma, Norman, Oklahoma—Meeting on 24 September elected new First Sergeant to replace former incumbent who did not return to school, laid plans for coming school year, and inducted four new members.

V. RAYMOND EDMAN COMPANY, Wheaton College, Wheaton, Ill.—New officers elected at meeting 24 September include Cadet David E. Hall as Captain. AUSA has been designated to operate the ROTC display for Parents' Day, 11 October, and to be in charge of the military chapel service 11 November.

BAUMHOLDER, GERMANY. MSgt Kenneth L. O'Neal (right), honor graduate, receives the Leadership Plaque of the 8th Infantry Division Chapter from its President, Brig. Gen. William F. Train, at graduation exercises of 8th Division's NCO Academy. Academy's assistant commandant, Lt. Charles F. Bamford, II, looks on.

VAIHINGEN, GERMANY. Newly elected President of Seventh Army Chapter, Col. William W. Ragland (left) and retiring Chapter head, Brig. Gen. James K. Wilson.

FORT LEAVENWORTH, KANS. Col. Leslie J. Staub (right), CO, 4th Region, ARADCOM, presents to Gov. George Docking of Kansas shovel used in ceremony breaking ground for Nike-Hercules defense of greater Kansas City area sponsored by Henry Leavenworth Chapter. Others in picture are Charles S. Stevenson, Civilian Aide to Secretary of the Army; Harold E. Purdy, President of Henry Leavenworth Chapter; Col. L. E. Laurion, USA District Engineer.



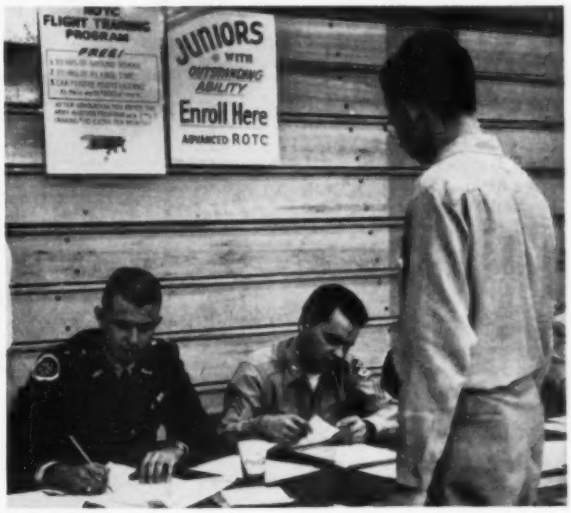
WAIKIKI, T. H. Installation of officers at dinner meeting of Hawaii Chapter at Princess Kaiulani Hotel on 11 August. Lt. Gen. Robert M. Cannon, Deputy CiC and Chief of Staff, USARPAC, congratulates (left to right) Brig. Gen. Kendall J. Fielder, President; Maj. Gen. Fred W. Makinney, TAG, Hawaii National Guard; Frank E. Midkiff, Civilian Aide to Secretary of the Army; Col. Percy H. Johnston, Jr., Second Vice President; Ernest W. Albrecht, Third Vice President.

TOBYHANNA SIGNAL DEPOT, PENNA. Principals in charter presentation meeting of Pocono Mountains Chapter on 16 September. Left to right, seated: Col. Clifford A. Poutré, Depot commander and President; Maj. Gen. A. J. Drexel Biddle, TAG of Pennsylvania and AUSA National President; Col. J. D. DeMarr, OCSigO; Col. R. A. Graham, Second Army's signal officer. Standing: Francis Rotunda, Treasurer; Lt. Col. E. E. Moran, Depot deputy CO; Rev. Richard Grady (Lt. Col., USAR).

BAUMHOLDER, GERMANY. Lt. Gen. Clyde D. Eddleman, CG of Seventh Army, addresses the 8th Infantry Division Chapter at its dinner meeting on 11 September.

WALDORF, MD. First Sgt. Oscar C. Sisemore presents membership cards of officers, noncommissioned officers and men of Battery C, 75th Missile Battalion, to Henry Handler, Secretary of George Washington Chapter. Capt. DeReef A. Greene and other members of Battery look on.

FRANKFURT, GERMANY. Newly elected officers of Frankfurt Chapter. Left to right: Col. F. R. Blankenship, President; First Sgt. E. S. Gardner, Second Vice President; Capt. David S. Parkhurst, Secretary; Maj. C. W. Coyne, Treasurer; Lt. Col. Kay K. Cowan, First Vice President.



POCATELLO, IDAHO. Cadet Harvey I. Buckles, Captain of Idaho State Company, assists SFC Leonard F. Ellis in signing up cadets for the ROTC Advanced Course.

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